



## **School of Histotechnology**

Curriculum Guide  
Student Handbook  
School/Student Catalog

**Class: January - June 2024**



**School of  
Histotechnology**  
2010 Health Campus Drive  
Harrisonburg, VA. 22801

Office and Lectures:  
1401 Technology Drive  
Office Phone: (540) 564-7232  
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[www.sentara.com/histotechnologyschool](http://www.sentara.com/histotechnologyschool)

**Curriculum Guide  
Student Handbook  
School/Student Catalog**

**Sentara RMH School of  
Histotechnology  
January to June 2024**

*The Sentara RMH School of  
Histotechnology is certified to  
operate by the State Council of  
Higher Education for Virginia  
(SCHEV).*

*The Sentara RMH School of  
Histotechnology is accredited by  
NAACLS.  
(773) 714-8880, [www.naacls.org](http://www.naacls.org).*

NAACLS  
5600 N. River Road  
Suite 720  
Rosemont, IL. 60018-5119

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## Sentara RMH School of Histotechnology

(Revised 6/2/2020)

### Chief Administrator/Officer of School

#### **Douglas J. Moyer**

*Sentara RMH Medical Center President  
and  
Corporate Vice President Sentara Healthcare*

Duties and responsibilities of the officer above is ultimate administration of Sentara RMH School of Histotechnology and School of Medical Laboratory Science.

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## **Sentara RMH School of Histotechnology**

### **Policy/Procedure When Applied Experience Cannot be Guaranteed**

(Revised 6/2/2020)

Selection of students will be limited annually to the number of slots available on clinical rotation.

Because of the large number of hospitals in the Sentara System, there should always be rotation slots to accommodate students for rotation should a disaster occur in one of the hospitals.

With regard to the didactic portion of the program, if the Sentara RMH School of Histotechnology would close, the lectures on file along with Power Points for the entire curriculum would be available to another Sentara Facility and their Lab departments. These certified histotechnologists could complete the didactic portion for the remaining months until the current class had finished the program.

The following is a list of all the hospitals in the Sentara Healthcare System:

Sentara Albemarle Medical Center- Elizabeth City, NC  
Sentara CarePlex Hospital- Hampton, VA  
Sentara Halifax Regional Hospital- South Boston, VA  
Sentara Leigh Hospital- Norfolk, VA  
Sentara Martha Jefferson Hospital- Charlottesville, VA  
Sentara Norfolk General Hospital- Norfolk, VA  
Sentara Northern Virginia Medical Center- Woodbridge, VA  
Sentara Obici Hospital- Suffolk, VA  
Sentara Princess Anne Hospital- Virginia Beach, VA  
Sentara RMH Medical Center- Harrisonburg, VA  
Sentara Virginia Beach General Hospital- Virginia Beach, VA  
Sentara Williamsburg Regional Medical Center- Williamsburg, VA

Further details of the didactic and rotation completion would be formulated if a closing of Sentara RMH School of Histotechnology should occur.

There is an affiliation agreement between Sentara RMH School of Histotechnology and all of the Sentara Hospitals.



## **Sentara RMH School of Histotechnology and Medical Laboratory Science**

### **Retention Policy in Event of Schools' Closure or Revocation of Certification**

(Revised 6/2/2020)

In the event of schools closure or revocation of certification, the schools shall make provisions for transferring all official records of students to the council office, or secure location that will maintain the records permanently, notify all students of this location and how they may obtain official copies. The records transferred to the council office, or other depository, shall include the academic records of each student, which should include:

1. Academic transcripts showing the basis of admissions, transfer credits, courses, credit, grades, graduation authorization, and student name changes for each student;
2. As no financial aid is offered to the students, there will be no record of transcripts of financial aid;
3. Foreign student forms for foreign students;
4. Veterans Administration records for veterans;
5. Copies of certificates awarded;
6. One set of course descriptions for all courses offered by the school;
7. Copy of NAACLS accreditation during the years covered by transcripts.

The schools shall notify all enrolled students of the pending closure immediately, describing their financial obligations as well as their rights to a refund or adjustment, and provisions made for assistance toward completion of their academic programs, whether by the institution that is closing, or by contract with another institution or organization to teach out the educational programs.

This policy is in addition to the schools policy on "if applied experience cannot be guaranteed."



## **Sentara RMH School of Histotechnology**

Harrisonburg, Virginia

(Revised 8/24/2020)

Sentara RMH Medical Center, founded in 1912, is located in Harrisonburg, Va. Sentara RMH is a not-for-profit, community-based regional healthcare facility licensed for 266 beds and fully accredited by DNV. Sentara Healthcare is a not-for-profit healthcare organization serving Virginia and northeastern North Carolina. It is based in Norfolk, Virginia and offers services in 12 acute care hospitals with more than 300 sites of care all throughout Virginia and northeastern North Carolina and beyond.

The Sentara RMH HTL Program was established in 2014 to address a severe national shortage of certified Histotechnologists. The program runs for one calendar year and includes six months of lecture and student lab followed by six months of rotation through a hospital histology lab. Clinical rotations are provided by the Histology departments at the following Sentara hospitals; Sentara Martha Jefferson Hospital and Sentara Norfolk General Hospital.

Block teaching is utilized in the didactic segment of the program with progression of courses from Fixation, Processing/Embedding, to Microtomy to Staining. Students choose the hospital for their clinical rotation during the application process on a first come-first serve basis. During the clinical rotation, students learn by working alongside the histology professionals in the department.

Entering students will be required to have a bachelor's degree with a minimum of 30 credits in biology and chemistry (minimum of 12 credits in each of chemistry and biology) prior to beginning the program or be guaranteed a degree from their college or university upon completion of the program. . A certificate will be awarded at the completion of the school.



## **Sentara RMH School of Histotechnology**

Harrisonburg, Virginia

### **MISSION STATEMENT**

(Revised 6/2/2020)

It is the mission of the Sentara RMH School of Histotechnology to graduate beginning histotechnologists with the skills, knowledge, motivation, and insight to excel in the practice of histology laboratory medicine, and to pass national certification examinations. These graduates will be motivated to continue their education, and to become our future educators, leaders, innovators and managers in the histology laboratory. The school will remain on the cutting edge of laboratory education providing the students with the curriculum that is current, safety conscious, and responsive to the dynamic health care environment.

The school's purpose includes an emphasis of 98% on instruction, 2% on research in the form of lectures during the education course, and 0% on public service.



## **Sentara RMH School of Histotechnology**

### **Program Goals**

(Revised 6/2/2020)

- Graduation of histotechnologists who can pass the ASCP HTL Certification Exam.
- Provide a safe atmosphere that encourages learning via various styles and assessing that knowledge.
- Graduates will have the necessary skills to perform and manage clinical histology laboratories.
- Graduates will possess superior skills to become educators and leaders in the field of histotechnology.
- Graduates will exhibit high degrees of professionalism and personal confidence resulting in positive representation of histotechnology in the health care arena.
- The school will provide clinical rotations that reinforce technical skills and knowledge resulting in a successful practicing histotechnologists.





## **Sentara RMH School of Histotechnology**

Harrisonburg, Virginia

### **Faculty**

Cyndee Lowe, MLS(ASCP)<sup>CM</sup>, M.A.  
Program Director, Sentara RMH School of Histotechnology

Shana Splawn, HTL(ASCP)<sup>CM</sup>, M.B.A.  
Sentara RMH School of Histotechnology Instructor

Abigail Blosser, MLS(ASCP)<sup>CM</sup>, B.S.  
Education Program Coordinator, Sentara RMH School of Medical Laboratory Science

### **Sentara Norfolk General Hospital Practicum Instructors**

Jessica Linhardt, HTL(ASCP)  
Clinical Liaison

Sharon B. Smith, HT(ASCP), CT, B.S.

Michael Chan, HT(ASCP), B.S.

### **Martha Jefferson Hospital Practicum Instructors**

Amy Carter, HTL(ASCP)  
Clinical Liaison



## **Sentara RMH School of Histotechnology**

Harrisonburg, Virginia

### **Faculty Selection Policy**

(Revised 6/2/2020)



The selection of faculty for the Sentara RMH School of Histotechnology is based on the following criteria:

1. Interest in education
2. Teaching ability
3. Two years of histology laboratory experience
4. Certification - HT(ASCP), preferred HTL(ASCP)<sup>CM</sup>, education, and continuing education

In selection of faculty, the Sentara RMH School of Histotechnology does not discriminate on the grounds of race, color, religion, national origin, sex, age, marital status, sexual orientation, family responsibilities, or political affiliation.

It is recommended that faculty have a minimum of a B.S. degree (Master's Degree preferred) and national certification HT(ASCP), with HTL (ASCP)<sup>CM</sup> preferred.



## **Sentara RMH School of Histotechnology**

### **Outcome Measures**

(Revised 6/2/2020)

The school does the following to evaluate and improve the program success to be consistent with the mission of the school:

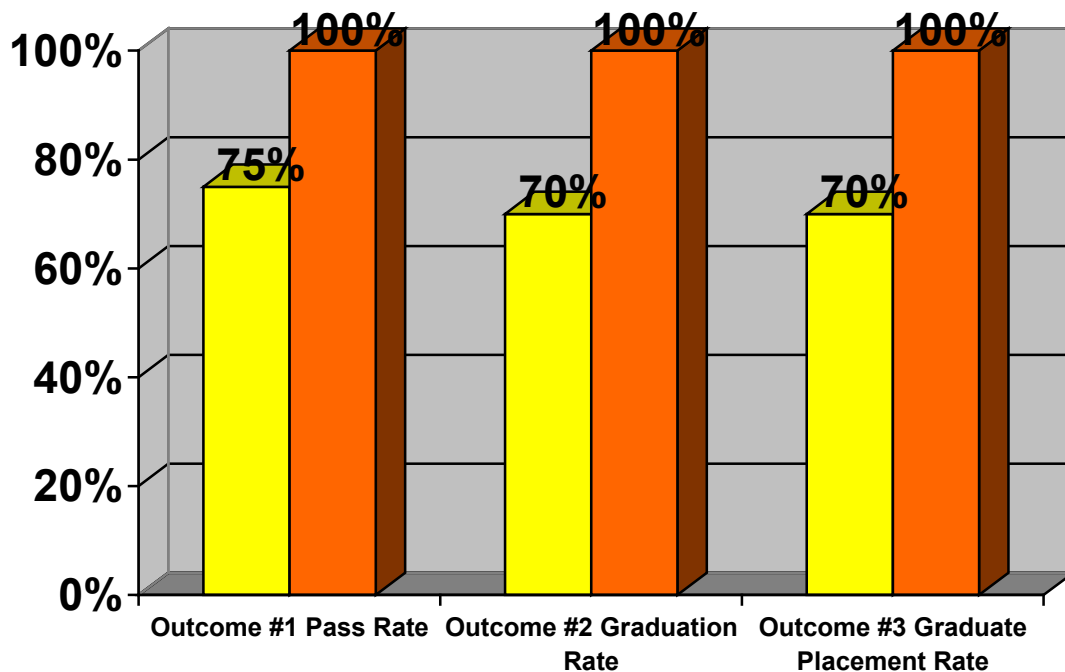
1. Monitor and report pass rate on ASCP Certification Exam.
2. Monitor placement rates of graduates.
3. Monitor attrition rates.
4. Send out questionnaires to:
  - Students
  - Graduates
  - Faculty
  - Employers
  - Advisory Committee
5. Monitor graduation rate for each class.



## Sentara RMH School of Histotechnology Program Outcome Measures 2022

(Updated 3/14/2023)

Percentages reflect all students graduated in 2022	
Certification Pass Rate	100%
Graduation Rate	100%
Placement Rate	100%



■ NAACLS Benchmark ■ Sentara RMH HTL School



## **Sentara RMH School of Histotechnology**

# **Academic Calendar**

(Revised 6/2/2020)

The academic calendar includes all the time from the beginning of class in January or June to the graduation date in December or June respectfully. This includes approximately 12 months with 6 months of didactic and 6 months of clinical/rotation per calendar year.

# January 2024

December '23						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

February '24						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31	1 NO CLASS	2 NO CLASS	3 9:00 HTL & MLS Welcome 1:30 HTL Orientation 1	4 9:00 HTL Orientation 2 1:30 Microtomy 1	5 9:00 HTL Orientation 3 1:30 P&E 1	6
7	8 9:00 HTL Orientation 4  1:30 P&E 2	9 9:00 HTL Orientation 5  1:30 Microtomy 2	10 9:00 Orientation Final  1:30 P&E 3	11 9:00 Lab/Study  1:30 Microtomy Exam	12 9:00 Lab/Study  1:30 P&E Exam	13
14	15 9:00 Microanatomy 1  1:30 P&E 4	16 9:00 Microtomy 3 11:00 Lab	17 9:00 Microanatomy 2  1:30 P&E 5	18 9:00 Microtomy 4 11:00 Lab	19 9:00 Microanatomy 3  1:30 P&E 6	20
21	22 9:00 Microanatomy 4  1:30 P&E Exam	23 9:00 Microtomy Exam 11:00 Lab	24 9:00 Microanatomy 5  1:30 P&E 7	25 9:00 Microtomy 5 11:00 Lab	26 9:00 Microanatomy Exam  1:30 P&E 8	27
28	29 9:00 Microanatomy 6  1:30 P&E Exam	30 9:00 Microtomy 6 11:00 Lab	31 9:00 Microanatomy 7  1:30 P&E 9	1	2	3
4	5	Notes				

# February 2024

January '24						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

March '24						
S	M	T	W	T	F	S
						1 2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	29	30	31	1 9:00 Microtomy Exam 11:00 Lab	2 9:00 Microanatomy 8  1:30 P&E 10	3
4	5 9:00 Microanatomy Exam  1:30 P&E 11	6 9:00 Microtomy 7 11:00 Lab	7 9:00 Microanatomy 9  1:30 P&E Exam	8 9:00 Microtomy 8 11:00 Lab	9 9:00 Microanatomy 10  1:30 P&E Review	10
11	12 9:00 Microanatomy 11  1:30 P&E Final	13 9:00 Microtomy Exam 11:00 Lab	14 9:00 Microanatomy Exam 11:00 Lab	15 9:00 Microtomy Review 11:00 Lab	16 9:00 Microanatomy Review  1:30 Fixaton 1	17
18	19 9:00 Microanatomy Final  1:30 Fixation 2	20 9:00 Microtomy Final  1:30 Stains 1	21 9:00 Fixation Exam  1:30 Education 1	22 9:00 Stains 2  1:30 Education 2	23 9:00 Fixation 3 11:00 Lab	24
25	26 9:00 Fixation 4  1:30 Education Final Week	27 9:00 Stains 3 11:00 Lab	28 9:00 Fixation 5 11:00 Lab	29 9:00 Stains Exam 11:00 Lab	1	2
3	4	Notes				

# March 2024

February '24						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

April '24						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
25	26	27	28	29	1 9:00 Fixation Exam  1:30 Stains 4	2
3	4 9:00 Microanatomy Review 1:30 Management 1	5 9:00 Fixation 6  1:30 Stains 5	6 9:00 Microanatomy Final  1:30 Management 2	7 9:00 Fixaton 7  1:30 Management 3	8 9:00 Fixaton 8  1:30 Stains Exam	9
10	11 9:00 Fixation Exam  1:30 Stains 6	12 9:00 Management 4 11:00 Lab	13 9:00 Fixation Review  1:30 Stains 7	14 9:00 Management Exam 11:00 Lab	15 9:00 Fixation Final  1:30 Stains 8	16
17	18 9:00 Stains Exam 11:00 Lab	19 9:00 Management 5 11:00 Lab	20 9:00 Stains 9 11:00 Lab	21 9:00 Management 6 11:00 Lab	22 9:00 Stains 10 11:00 Lab	23
24	25 9:00 Stains 11  1:30 Management 7	26 9:00 Lab	27 9:00 Stains 12  1:30 Management 8	28 9:00 Lab	29 No Class Good Friday	30
31	1	Notes				



# April 2024

March '24						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

May '24						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31	1 No Class	2 9:00 Stains 13 10:30 Management Final	3 9:00 Lab	4 9:00 Stains 14 11:00 Lab	5 9:00 IHC 1 11:00 Lab	6
7	8 9:00 Stains Exam 11:00 Lab	9 9:00 IHC 2 11:00 Lab	10 9:00 Stains 15 11:00 Lab	11 9:00 IHC 3 11:00 Lab	12 9:00 Stains 16 11:00 Lab	13
14	15 9:00 Stains 17 11:00 Lab	16 9:00 IHC 4 11:00 Lab	17 9:00 Stains 18 11:00 Lab	18 9:00 IHC 5 11:00 Lab	19 9:00 Stains 19 11:00 Lab	20
21	22 9:00 Stains 20 11:00 Lab	23 9:00 IHC Exam 11:00 Lab	24 9:00 Stains Exam 11:00 Lab	25 9:00 IHC 6 11:00 Lab	26 9:00 Stains 21 11:00 Lab	27
28	29 9:00 Stains 22 11:00 Lab	30 9:00 IHC 7 11:00 Lab	1	2	3	4
5	6	Notes				

# May 2024

April '24						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

June '24						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	29	30	1 9:00 Stains23 11:00 Lab	2 9:00 IHC 8 11:00 Lab	3 9:00 Stains Exam 11:00 Lab	4
5	6 9:00 Stains 24 11:00 Lab	7 9:00 IHC 9 11:00 Lab	8 9:00 Stains 25 11:00 Lab	9 9:00 IHC Exam 11:00 Lab	10 9:00 Stains 26 11:00 Lab	11
12	13 9:00 Stains 27 11:00 Lab	14 9:00 IHC 10 11:00 Lab	15 9:00 Stains 28 11:00 Lab	16 9:00 IHC 11 11:00 Lab	17 9:00 Stains Exam 11:00 Lab	18
19	20 9:00 Stains 29 11:00 Lab/Study	21 9:00 IHC 12 11:00 Lab	22 9:00 Stains 30 11:00 Lab	23 9:00 IHC 13 11:00 Lab	24 9:00 Stains 31 11:00 Lab	25
26	27 NO CLASS Memorial Day	28 9:00 Stains Exam 11:00 Lab	29 9:00 IHC Exam 1:30 IHC 14	30 9:00 Stains Review 11:00 Lab	31 9:00 IHC 15 11:00 Lab	1
2	3	Notes				

# June 2024

May '24						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

July '24						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	31	1
2	3 9:00 IHC 16 11:00 Lab	4 9:00 Stains Final 11:00 Lab	5 9:00 IHC 17 11:00 Lab	6 9:00 Lab/Study	7 9:00 IHC Exam 11:00 Lab	8
9	10 9:00 IHC Review 11:00 Lab	11 9:00 Lab	12 9:00 IHC Final	13 No Class	14 No Class	15
16	17 Rotation 1	18 Rotation 1	19 Rotation 1	20 Rotation 1	21 Rotation 1	22
23	24 Rotation 2	25 Rotation 2	26 Rotation 2	27	28	29
30	1	Notes				



## **Sentara RMH School of Histotechnology**

Harrisonburg, Virginia

### **Orientation Materials Checklist**

(Revised 6/2/2020)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

- ☐ Copy of License
- ☐ Copy of Health Insurance
- ☐ Copy of COVID vaccine card
- ☐ Enrollment Agreement
- ☐ Essential Functions
- ☐ Honor Code
- ☐ Health and Safety Policy
- ☐ Confirmation of Knowledge
- ☐ Non-Patient Photo and Video Release
- ☐ Statement of Responsibility & Confidentiality
- ☐ Online Orientation Training
- ☐ Department Orientation



**Sentara RMH School of Histotechnology**

2010 Health Campus Drive

Harrisonburg, VA 28801

(Phone) 540-564-7232

(Fax) 540-437-0517

(Web Site) [www.sentara.com/histotechnologyschool](http://www.sentara.com/histotechnologyschool)

(E-Mail) [CSLOWE@SENTARA.COM](mailto:CSLOWE@SENTARA.COM)

**ENROLLMENT AGREEMENT**

STUDENT INFORMATION

STUDENT NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY/STATE/ZIP: \_\_\_\_\_

TELEPHONE #'S: H: \_\_\_\_\_ C: \_\_\_\_\_ W: \_\_\_\_\_

E-MAIL: \_\_\_\_\_

SOCIAL SECURITY #: \_\_\_\_\_

EMERGENCY CONTACT: \_\_\_\_\_

RELATIONSHIP: \_\_\_\_\_ TELEPHONE #: \_\_\_\_\_

PROGRAM INFORMATION

DATE OF ADMISSION: \_\_\_\_/\_\_\_\_/\_\_\_\_ PROGRAM/COURSE: \_\_\_\_\_  
MO DAY YEAR

PROGRAM START DATE: \_\_\_\_\_ ANTICIPATED END DATE: \_\_\_\_\_

FULL-TIME: ☐ PART-TIME: ☐ DAY: ☐ EVENING: ☐  
DAYS/EVENINGS CLASS MEETS: (CIRCLE) M T W TH F Sat Sun

TIME OF DAY/EVENING CLASS BEGINS: \_\_\_\_\_ TIME OF DAY/EVENING CLASS ENDS: \_\_\_\_\_

NUMBER OF WEEKS: \_\_\_\_\_ TOTAL CREDIT/CLOCK HOURS \_\_\_\_\_  
(CIRCLE ONE)

#### TUITION

#### THE TOTAL COST OF THE SENTARA RMH MEDICAL LABORATORY SCIENCE PROGRAM

TUITION: \$ \_\_\_\_\_

NON-REFUNDABLE REGISTRATION FEE: \$ \_\_\_\_\_ *(may not exceed \$100)*

BOOKS/SUPPLIES: \$ \_\_\_\_\_

UNIFORM: \$ \_\_\_\_\_

MISC. EXPENSES: \$ \_\_\_\_\_

TOTAL COST: \$ \_\_\_\_\_

#### CANCELLATION REFUND POLICY

Rejection: An applicant rejected by the school is entitled to a refund of all monies paid.

Three-Day Cancellation: An applicant who provides written notice of cancellation with three (3) business days, excluding weekends and holidays, of executing the enrollment agreement is entitled to a refund of all monies paid, excluding the non-refundable registration fee.

Other Cancellations: An application requesting cancellation more than three(3) business days after executing the enrollment agreement and making an initial payment, but prior to the first day of class is entitled to a refund of all monies paid, less a maximum tuition fee of 15% of the stated cost of the course or \$100, whichever is less.

Withdrawal Procedure:

- A. A student choosing to withdraw from the school after the commencement of classes is to provide a written notice to the Director of the school. The notice must include the expected last date of attendance and be signed and dated by the student.
- B. If special circumstances arise, a student may request, in writing, a leave of absence, which should include the date the student anticipates the leave beginning and ending. The withdrawal date will be the date the student begins leave of absence.
- C. A student will be determined to be withdrawn from the institution if the student misses seven consecutive instructional days and all of the days are unexcused.

Tuition refunds will be determined as follows:

Proportion of Total Program Taught by Withdrawal Date	Tuition Refund
Less than 25%	75% of program cost
25% up to but less than 50%	50% of program cost
50% up to but less than 75%	25% of program cost
75% or more	No Refund

NOTICE TO BUYER:

- 1. Do not sign this agreement before you have read it or if it contains any blank spaces.
- 2. This agreement is a legally binding instrument.
- 3. You are entitled to an exact copy of this agreement and any disclosure pages you sign.
- 4. This agreement and the school catalog constitute the entire agreement between the student and the school.
- 5. The school reserves the right to reschedule the program start date.
- 6. The school reserves the right to terminate a student's training for unsatisfactory progress, nonpayment of tuition or failure to abide by established standards of conduct.
- 7. The school does not guarantee the transferability of credits to a college, university or institution. Any decision on the comparability, appropriateness and applicability of credit and whether they should be accepted is the decision of the receiving institution.

STUDENT ACKNOWLEDGMENTS:

1. I hereby acknowledge receipt of the school's catalog dated \_\_\_\_\_, which contains information describing programs offered. The school catalog is included as part of this enrollment agreement and I acknowledge that I have received a copy of this catalog.

\_\_\_\_\_Student Initials

2. I have carefully read and received an exact copy of this enrollment agreement.

\_\_\_\_\_Student Initials

3. I understand that the school may terminate my enrollment if I fail to comply with attendance, academic, and financial requirements or if I fail to abide by established standards of conduct, as outlined in the school catalog. While enrolled in the school, I understand that I must maintain satisfactory academic progress as described in the school catalog and that my financial obligation to the school must be paid in full before a certificate may be awarded.

\_\_\_\_\_Student Initials

4. I understand that the school does not guarantee job placement to graduates upon program completion or upon graduation.

\_\_\_\_\_Student Initials

5. I understand that complaints, which cannot be resolved by direct negotiation with the school in accordance to its written grievance policy, may be filed with the State Council of Higher Education for Virginia, 101 N. 14<sup>th</sup> Street, 9<sup>th</sup> Floor, James Monroe Building, Richmond, VA 23219. All student complaints must be submitted in writing.

\_\_\_\_\_Student Initials



## CONTRACT ACCEPTANCE

I, the undersigned, have read and understand this agreement and acknowledge receipt of a copy. It is further understood and agreed that this agreement supersedes all prior or contemporaneous verbal or written agreements and may not be modified without the written agreement of the student and the School Official. I also understand that if I default upon this agreement I will be responsible for payment of any collection fees or attorney fees incurred by \_\_\_\_\_ (school name).

My signature below signifies that I have read and understand all aspects of this agreement and do recognize my legal responsibilities in regard to this contract.

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

\_\_\_\_\_  
Signature of Student

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of School Official

\_\_\_\_\_  
Date

## REPRESENTATIVE'S CERTIFICATION:

I hereby certify that \_\_\_\_\_ has been interviewed by me and in my judgment, meets all requirements for acceptance as a student in the \_\_\_\_\_ (program name) at \_\_\_\_\_ (school name), as described in the school catalog. I further certify that there have been no verbal or written agreements or promises other than those appearing on this agreement.



## **Sentara RMH School of Histotechnology**

Harrisonburg, Virginia

### **ESSENTIAL FUNCTIONS**

(Revised 6/2/2020)

The following essential functions are required for admission to the program:

1. Manual Dexterity: Ability to use hand(s) or prosthetic devices with coordination.
2. Fine Motor: Ability to manipulate small objects with fingertips or adaptive devices.
3. Mobility: Ability to maneuver in the laboratory and around instruments and in patients care settings.
4. Vision: Ability to distinguish red, yellow, and blue colors; distinguish clear from cloudy, and distinguish objects through a microscope.
5. Speech: Ability to verbally communicate understandably in English.
6. Hearing: Ability to adapt with assistive devices (i.e., phone receivers, hearing aid, etc.)
7. Writing: Ability to communicate effectively in the written form in English.
8. Reading: Ability to read, understand and follow directions printed in English.
9. Psychological Stability: Ability to demonstrate the emotional health required for full utilization of the applicant's intellectual abilities. Must be able to recognize emergency situations and take the appropriate actions.

**Students entering the Sentara RMH School of Histotechnology must be able to sign the following statement:**

*I \_\_\_\_\_ (Name) attest that I have read and understand the essential functions of the Sentara RMH School of Histotechnology and I believe that I can, and am prepared to, meet these requirements.*

---

Signature

Date



## **Sentara RMH School of Histotechnology**

Harrisonburg, Virginia

### **Honor Code & Policy for Completion of Program**

(Revised 6/2/2020)

I understand that if I cheat on an exam, practical or any type of evaluation instrument, that I will be dismissed from the school. I have read the causes for dismissal from the program, and agree to abide by the Sentara RMH Rules and I agree to abide by the honor code of the Sentara RMH School of Histotechnology, and regulations while I am a student in the school.

I have read the information for progression through the program found in the Curriculum Guide. I understand the necessary requirements for progression in and completion of the program.

*By signing this document I attest to the above stipulations.*

---

Student Signature

---

Date



## **Sentara RMH School of Histotechnology**

Harrisonburg, Virginia

### **Health and Safety Policy Signature Sheet**

(Revised 6/2/2020)

I acknowledge that I have received instructions on health and safety during my hospital orientation class and Sentara RMH School of Histotechnology Orientation course.

I understand this material and agree to adhere to the health and safety policies to include biohazard and safety training. Additional safety training will be in the School of Histotechnology Student Lab and during clinical rotation.

---

Student Signature

---

Date



## **Sentara RMH School of Histotechnology**

### **Confirmation of Knowledge of Rules and Regulations**

(Revised 6/2/2020)

As a student of the Sentara RMH School of Histotechnology, I agree to abide by the code of ethics and the general rules and policies of the school and the hospital, and I am responsible for my conduct at all times. In signing below, I also affirm that to the best of my knowledge, the application information is correct and accurate.

---

Signature

Date

# Consent for Photography/Videotaping/Interview

## (For Media, Public Relations, Marketing, and Educational Purposes)

Date: \_\_\_\_\_

☐ SENTARA EMPLOYEE

☐ PHYSICIAN

☐ AGENCY/COMPANY

☐ OTHER: \_\_\_\_\_

☐ FAMILY MEMBER

Name (Print): \_\_\_\_\_

Street Address: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

E-Mail: \_\_\_\_\_

I consent to interviews, photographs, or videotapes of me or my family member(s), that may disclose personal health information, for use, reproduction, and/or publication by Sentara Healthcare and its affiliates ("Sentara"), and authorize release by Sentara to other organizations or news outlets, including local, regional, national, and international print, broadcast, and internet media.

I understand and agree that these images and interviews, including my image, likeness, and/or voice, may be used in the news or by Sentara for purposes of education, promotion, public relations, and/or marketing, and that they may appear in print, on television, in radio broadcasts, or on the internet. I understand that there is a possibility that I may be identifiable in these photographs, videos, or written/audio accounts, though my name will not be published unless I specifically agree below.

☐ I DO ☐ I DO NOT Consent to the use of my name (or the patient's) with these photographs or videos.

I agree to release and hold harmless Sentara, its trustees, agents, officers, and employees from any and all liability which may arise from the making of or use of these photographs, videotapes, or interviews, and I will not request payment for the use of my image or likeness.

I understand that signing this authorization is strictly voluntary and that I may revoke it at any time. However, I acknowledge that any interviews or images to which I consented prior to revocation may already be in the public realm and not retrievable. I also understand that any personal health information released by me under this consent will no longer be protected by federal privacy regulations.

\_\_\_\_\_  
SIGNATURE (OR SIGNATURE OF GUARDIAN IF A MINOR UNDER 18 YEARS OLD)

\_\_\_\_\_  
DATE

**Person responsible for photo shoot / videotaping / interview session: (PLEASE PRINT)**

\_\_\_\_\_  
NAME

\_\_\_\_\_  
TITLE

\_\_\_\_\_  
ORGANIZATION

**NOTES:**



SENTARA<sup>TM</sup>

## Statement of Responsibility & Confidentiality

All employees of Sentara Healthcare and any individuals who have access to Sentara Healthcare information, files, data or computer applications must sign and follow this statement of responsibility and confidentiality.

1. I understand and agree that any information I learn during my employment and/or affiliation with Sentara Healthcare regarding patients/families, physicians/dentists/limited health practitioners is confidential. I agree not to use, view, discuss, disclose, duplicate, alter or destroy such information **unless my job requires it**. Further, I will not give such information to anyone who does not have authorized access to it, attempt to learn confidential information not required by my job or discuss such information when participating in social media or other internet sites (i.e. posting of information, photographs, etc).
2. I understand this statement also covers all passwords issued to or used by me to operate Sentara Healthcare computer systems. Therefore, I agree not tell my passwords to anyone for any reason, not to permit another person to use them, not to use another person's, and not to sign on to any system to allow an unauthorized person to use the system. Further, since my passwords are the equivalent of my legal signature, I agree immediately to change or have changed passwords that have become known to other people.
3. I understand and agree to follow all SHC security policies and procedures of specific computer systems to which I am given access. I also understand if I have not used my access to a certain system within 90 days, my access to it may be suspended, and if I have not used it in 90 days, my access may be deleted.
4. I understand that I am responsible for logging off a system session if I leave the vicinity for the system workstation. I further understand that if I fail to log off the system session, I will personally be held responsible for any activity performed on the system after I left the workstation vicinity.
5. I understand and agree that I am responsible for Sentara Healthcare resources, material, and data in my possession. I will take precautions to protect them from theft, temperature changes, water damage, and other intentional damage; I understand that if I do not take reasonable precautions, I may be held liable for any damage incurred.
6. Although incidental and occasional personal use of Sentara hardware, software, and data is permitted, I understand that excessive personal use or inappropriate use of any Sentara resources, material, and data may result in disciplinary action up to and including termination and also agree not to allow another person to use them for personal use while they are in my possession. I acknowledge that I represent the company when using Sentara hardware, software, and data and will not participate in any activities that are unlawful nor will I release protected health information, Sentara trade secrets and other confidential business material of Sentara gained as a result of my position. I understand that any actions I take in the computer based information systems are tagged with my unique identifier as established in my user profile and such actions can be traced back to me.
7. I agree to respect copyright laws and not to make unauthorized copies of copyrighted material, and I understand that I will be held personally liable for any unauthorized copies of copyrighted material made by me.
8. I understand all patient medical information is confidential and agree to treat it as such. I further agree that I will use and disclose such information only in accordance with state and federal laws, including, but not limited to, the regulations promulgated under the Health Insurance Portability and Accountability Act of 1996.
9. Even if not technically enforceable, and to the extent possible, I will ensure that my passwords comply with the password Management Policy to the extent that a particular password is capable of compliance. For example, if the system can only accept a 6 character password, 6 characters will be sufficient.

I have read and understand the above and acknowledge that it is my responsibility to adhere to this Statement of Responsibility & Confidentiality at all times. I agree that any violation of this understanding and agreement will result in my losing access to computer systems and is grounds for corrective action that may result in dismissal. Sentara Healthcare will retain the original signed copy of this Statement of Responsibility and Confidentiality. I understand that this document does not alter my relationship with Sentara as an at-will employee.

User Name \_\_\_\_\_ Date \_\_\_\_\_

(Please print your first, middle, and last name) \_\_\_\_\_

User Signature \_\_\_\_\_ Employee ID \_\_\_\_\_

I understand that if the user named above changes job function, transfers to another department, requires leave of absence, or terminates employment, affiliation, or association, I must notify Security Administration immediately.

File in Personnel File





## **Online Orientation Training**

(Revised 6/2/2020)

Complete all modules which have been assigned on Sentara Workday by 1/12/24



## Sentara Healthcare Department Orientation Checklist

*This form should be completed within 30-days of someone starting in your department.*

Employee/Non-Employee Name (Print)	Title	Department	Date
Sentara Mission Statement – “We improve health every day”			
Introductions to staff/manager			
Tour of unit/facility, a Tobacco-Free campus			
Location of restrooms, break room, equipment, supplies, etc.			
Emergency codes review and number to call for emergencies (12)			
Location of fire extinguishers, pull boxes, fire plan, routes, RACE/PASS			
Hazardous Materials Safety Data Sheets access			
Infection Prevention and Control- personal protective equipment and where to locate, isolation precautions, handling exposures, eye wash station and procedure, *physically demonstrate proper hand hygiene (5 maneuvers)			
Video Remote Interpreter			
Dress code, badge requirements, specific unit/dept. policies			
HIPAA and privacy requirements			
Other: (Please list)			

Employee/Non-Employee Signature \_\_\_\_\_ Date: \_\_\_\_\_

Manager Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**\*\* Do not draw lines down page; each box needs to be filled in with date/initials.\*\***

**Sign and retain a completed copy in the education folder. Additional department orientation material may be added as required.**

Rev: 5/11/2022

\*SWRMC Revision: Added Demonstrate proper hand hygiene (5 maneuvers)



**School of Histotechnology**  
Harrisonburg, Virginia

**Safety Policies**

(Revised 6/2/2020)

**Student Safety**

All students must follow the safety policies of the hospital and school. Student safety is of the utmost concern for the hospital and school, and precautions to protect that safety will be maintained. Safety policies required by CAP and DNV and other accrediting agencies will be followed by the hospital and school.

**Laboratory Accidents**

All laboratory accidents are to be reported immediately to one of the following:

Program Director

Laboratory Administrative Director

One of the laboratory managers

A **STARS Report** will be completed and filed, and any necessary medical attention promptly given. It is imperative that **all** accidents, no matter how minor, be reported.

Students in the Histotechnology program are responsible for observing and following all hospital policies. The student is encouraged to review the laboratory policy manual upon entrance into the program. A copy of the manual is located in each clinical section.



## Sentara RMH Laboratory Schools Fire Plan

**Purpose:** To delineate procedures to be followed by staff and students of Sentara RMH School of Medical Laboratory Science, Sentara RMH School of Histotechnology and School of Phlebotomy in the event of a fire until the arrival of the local fire department.

**Procedure:**

1. All employees will follow the procedures described by the acronym 'RACE' as outlined in the hospital procedure manual.

<b>R</b>	<b>Remove/rescue</b> all students or visitors who are in immediate danger
<b>A</b>	<b>Activate</b> the nearest fire alarm by calling 911
<b>C</b>	<b>Confine</b> the fire by closing all doors/windows
<b>E</b>	<b>Extinguish</b> the fire until the arrival of the Fire Department

2. There are three fire pulls in the building, located at each of the three exits. In case of fire, proceed to closest exit to activate the alarm. Emergency lighting is located at each exit.
3. There are smoke detectors located throughout the building; employees should observe where they are located in their work areas.
4. There are **7 fire extinguishers** located in the building:
  - A. At both ends of the front hallway (2)
  - B. At both ends of the back hallway (2)
  - C. Breakroom
  - D. MLS student laboratory
  - E. HTL student laboratory
5. There are **3 exits** located in the building:
  - A. Front door of the building
  - B. At both ends of the back hall

## General Fire Plan

1. **Inform:** The urgency and degree of the evacuation is a judgmental matter, depending on the situation. Some fires may require partial or total evacuation.
  - A. Decision to evacuate the department shall be made by the Program Director
2. **Report:** The fire is reported by following the steps outlined below:
  - A. Call in a loud voice, "Attention...a fire has been located in the building. Please remain calm and report to the nearest exit."
  - B. Call 911
3. **Contain:** To prevent the spread of fire and smoke, close all windows and doors but do not lock them. A confined fire will gain less headway and spread less smoke to other areas.
4. **Fight fire:** After making sure everyone in the building is safe, and reporting fire, immediately start to extinguish or control fire. Follow the procedures delineated by the acronym PASS as outlined in the hospital procedure manual:

<b>P</b>	Pull
<b>A</b>	Aim
<b>S</b>	Squeeze
<b>S</b>	Sweep
5. **Evacuation:** If it is not safe to attempt to extinguish the fire, the area should be evacuated. Muster point for the building is the bus stop on Technology Drive.

### Staff Responsibilities:

- A. Ascertain the location of the fire
- B. Implement fire plan
- C. Communicate with staff and students
- D. Evacuate students to nearest exit
- E. Inform arriving fire department
- F. Notify supervisor

### Training:

- A. New personnel orientation will include a review of the departmental plan.
- B. Each new class of students will be educated on the departmental plan, their roles, their evacuation routes, and the principals of RACE and PASS.
- C. Employees will be inserviced annually on the departmental plan, their roles, their evacuation routes, and the principals of RACE and PASS.

# FIRE PLAN

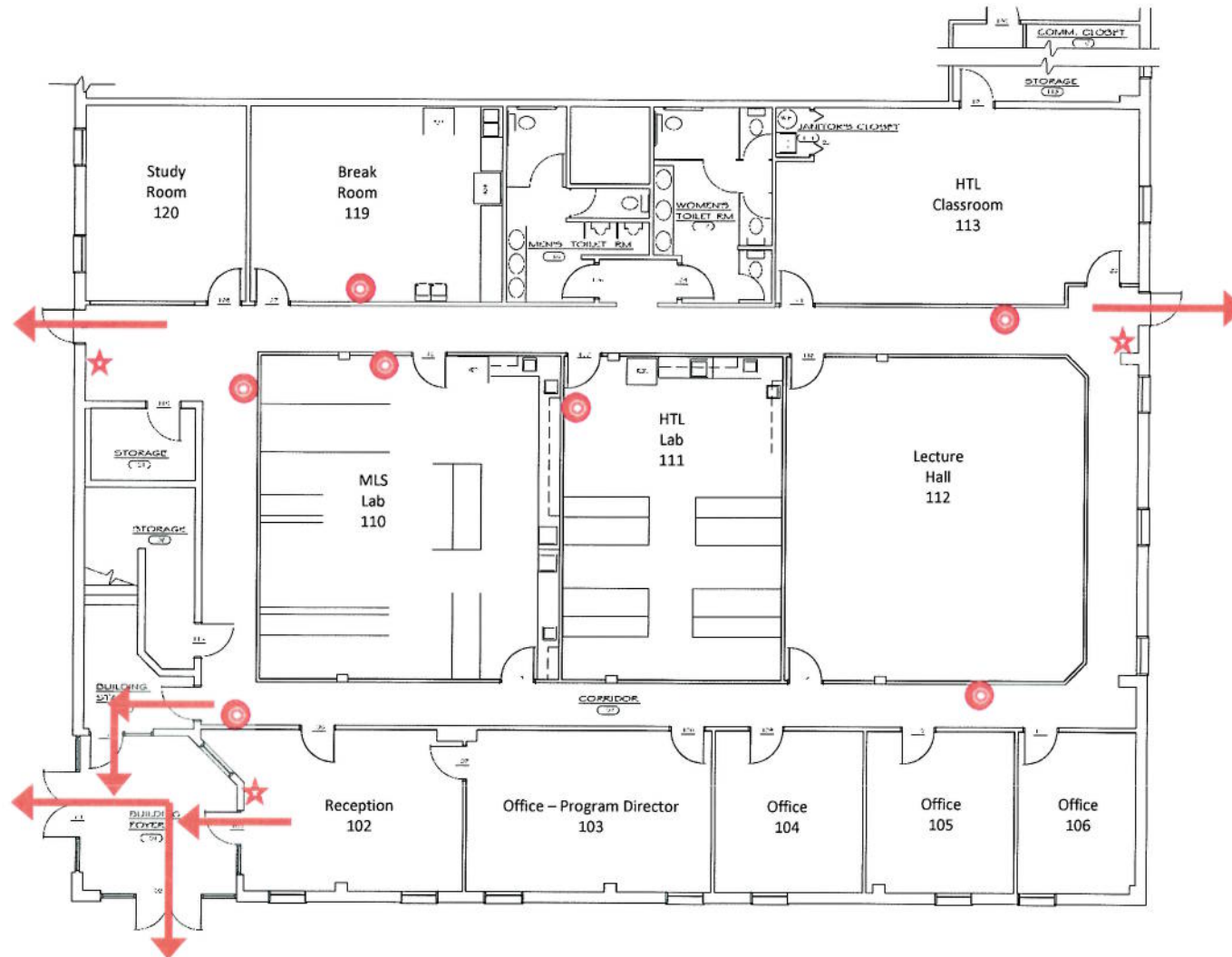
Sentara RMH Medical Center School of Histotechnology (HTL) and School of Medical Laboratory Science (MLS)  
Building Located at 1401 Technology Drive



= Fire Extinguisher



= Fire Pull Station



Muster point for the building is the bus stop on Technology Drive.



## **Sentara RMH School of Histotechnology**

Harrisonburg, Virginia

### **Snow Policy**

(Revised 6/2/2020)



The Sentara RMH School of Histotechnology will follow the cancellations of classes because of snow and ice or hazardous driving conditions the same as James Madison University of Harrisonburg, Virginia. When you hear the announcement of closing James Madison University classes, you will know that Sentara RMH School of Histotechnology is also closed. This only applies to closing due to bad weather and does not apply to any other situation. Announcements are given on radio and television in the case of bad weather. If there is a 2 hour delay because of weather at JMU, the same will apply to Sentara RMH classes.

Students on rotation at Sentara Hospitals in the Norfolk and Williamsburg areas will follow the cancellation of classes because of snow and ice or hazardous driving conditions the same as Old Dominion University. When you hear the announcement of closing at ODU, you know that Sentara RMH School of Histotechnology is also closed. This only applies to closings due to bad weather and does not apply to any other situation. If there is a 2 hour delay because of weather at ODU, the same will apply to Sentara RMH classes.

Students on rotation at Sentara Hospitals in the Charlottesville area will follow the cancellation of classes because of snow and ice or hazardous driving conditions the same as the University of Virginia. When you hear the announcement of closing at UVA, you know that Sentara RMH School of Histotechnology is also closed. This only applies to closings due to bad weather and does not apply to any other situation. If there is a 2 hour delay because of weather at UVA, the same will apply to Sentara RMH classes.



## School of Histotechnology

Harrisonburg, Virginia

### General Policies

(Revised 6/2/2020)

**Grievance Procedure (Academic and non-academic grievances will follow the same policy, and will be addressed in the same manner.)**

Students are encouraged to maintain open lines of communication with faculty. This will promote discussion of any problem that may arise. If for any reason, the student feels that they have been treated unfairly, they may proceed with the grievance procedure. This grievance procedure will apply to an academic and non-academic grievance. It is as follows:

1. The student will bring the charge in writing to the program director within two weeks of the action or occurrence.
2. A response will be made by the program director within two weeks.
3. If the student is not satisfied with the ruling of the program director, they may file a written complaint to the laboratory administrative director.
4. The laboratory administrative director will make a ruling on the complaint.
5. If the student is not satisfied, the grievance committee will be convened, at the written request of the student. The panel will be made up of seven members. These will include the program director, SRMH laboratory administrative director, a student from the current class, SRMH Histology Instructor, education coordinator for HTL school at Sentara, one member from the SRMH Human Resources Department, and one member of the faculty from one of the university affiliates of the SRMH School of Histotechnology (if possible, this member will be from the college the student attended). This committee will meet within two weeks of the written request from the student. The results of the grievance committee will be the final decision. The committee will give the final report within two weeks of the meeting to the student and any other parties involved. Waivers of the above stipulations may be granted if agreed to by all parties.

The student may contact the State Council of Higher Education as a last resort.

State Council of Higher Education for Virginia (SCHEV)  
Private and Out-of-State Postsecondary Education  
101 N. 14<sup>th</sup> Street  
Richmond, VA 2321



### **Tuition**

The tuition for the year is \$5,000.00 for all students regardless if that student pays tuition to a university. Tuition must be paid before classes begin in all cases. Tuition must be paid in full. There are no installment payments available. The school does not offer any types of financial aid. One fee for the year of \$100.00 is collected when the student accepts a position in the school. The \$100.00 fee is nonrefundable. An additional \$150 graduation fee will be billed during the second half of the program. Accepted students will be sent a list of required textbooks. These are purchased by the student and brought the first day of class. The school does not participate in the federal student aid program.

### **Health Care**

Each student must have and is responsible for obtaining an adequate health insurance policy during the clinical year. Evidence of this health insurance coverage must be demonstrated upon entering the Program. Any services administered as an inpatient are the responsibility of the student.

Emergency Room services and other hospital services are available to students for charges as rendered in the same manner as employees. Students injured as a result of a laboratory or hospital accident will be taken to the hospital emergency room for any necessary treatment. The student will be responsible for any expenses that are charged by the emergency room for such a visit.

### **Liability Insurance**

The SRMH Healthcare will cover students with liability insurance while they are in class.

### **Leave of Absence (Voluntary Withdrawal)**

In reference to voluntary withdrawal or leave of absence, re-admission to the program is contingent upon past records and space availability. Re-admission of students dismissed for academic or disciplinary reasons would not be considered unless such dismissal was due to illness or other correctable circumstances. Students have the right to appeal.

It is recognized that interruptions may occur for various acceptable reasons, such as an accident, illness, or pregnancy. Each request for interruption of the program will be considered on an individual basis. When a subject has been completed in its entirety, including both lecture and clinical rotation, credit will not be lost by interruption of the program. Partial credit would be given if at least three months of the program had been completed. Re-entrance for such interrupted training is dependent on space availability, academic standing at the time of the interruption, and length of interruption interval. Interrupted training must be reinstated within a two-year period.

A student who does not resume attendance on the return date following a leave of absence will be terminated by the program.

### **Withdrawal Policy**

A student may withdraw from the Program at any time. A completed transcript of grades is generated for each student at graduation. Transcripts are not generated for students who do not finish the program. The withdrawal/cancellation must be made during the three (3) day cancellation period. For 100% refund

of tuition, withdrawal must be made during the three (3) day cancellation period. Withdrawal should be submitted in writing with student signature.

### **Student Counseling**

There is an open-door policy with the program director and the education coordinator. Students may seek advice or counseling at any time throughout the year.

One formal counseling session with the program director and the HTL instructor will be scheduled. Additional formal sessions will be held if the student is experiencing problems.

If a student has concerns/problems within the didactic phase of the Program, the student should first discuss the matter with the respective instructor. If not satisfied with the response, the student may then contact the Program Director for further discussion.

After each rotation, the student will receive an evaluation completed by the department. This is an additional opportunity for the student to receive counseling when this evaluation is discussed between the Program Director and the student.

During the clinical rotation portion of the program, the program director and education coordinator will contact the student regarding career planning. Students will be advised on how to write a resume and will be given information regarding job openings both within Sentara labs and at other healthcare facilities.

Faculty will be available 30 minutes before or after each class for academic and/or course advising to students. There are no placement services offered by the school.

### **Parking**

Parking is available in the lot next to the building. Please leave parking along the building for faculty and guests.

### **Professional Dress Code**

Black scrubs must be worn at all times according to the Sentara RMH Healthcare dress policy. Scrub colors for rotation at other Sentara hospitals may vary. No flip-flops or open-toed shoes may be worn. If dress is not appropriate, the student will be asked to leave and not return until appropriate dress is worn. Any infractions will be noted in the student's permanent record.

### **Substance Abuse Policy**

SRMH Healthcare has a strong commitment to its employees and patients to provide a safe work place and to establish programs promoting high standard of employee health and wellness. The Hospital's goal will continue to be one of establishing and maintaining a work environment that is free from: (A) the effects of illegal drugs, (B) the effects of alcohol, and (C) the abuse of legal drugs and substances. The Hospital recognizes that serious involvement with drugs or alcohol eventually takes a toll on an individual, family and the organization. Students having a drug or alcohol problem are strongly encouraged to seek outside professional assistance.

**Students are subject to abide by Sentara Policy.**

**Policy:** 109 - Dress Code and Grooming Policy

**Division:** Sentara Healthcare

**Original Date:** 09/98

**Manual:** Human Resources

**Revision Date:** 1/1/2017

**Section:** General Information

**Approved By:** Michael Taylor

**Location(s):** SNGH, SLH, SPA, SVBGH, SOH, SWRMC, SCH, SNVMC, SRMH, SMJH, SHC, SE, Optima, SLC, SAMC, SHRH, SMG

**Process Owner:** Human Resources

Revision Date	Revision Description (Most Recent)
1/1/2017	Moved to system wide Dress Code Policy; Policy moved under Human Resources

**Policy Statement:**

The purpose of this policy is to promote a professional image and foster a positive work environment for Sentara employees. This policy is also to ensure security through proper identification of staff in the health care work environment, meet safety and regulatory requirements, as well as ensuring cleanliness to mitigate any potential transmission of pathogens within a clinical setting. Everyone is obligated to help ensure the consistent application and enforcement of our professional image to our customers.

**Exceptions/Accommodations:**

Exceptions or accommodations may be made for employees with medical conditions including pregnancy, religious beliefs that require special clothing, jewelry, shoes, etc. Employees must make requests for exceptions or accommodations to their supervisor. The supervisor in collaboration with Human Resources, Infection Prevention and Control and Occupational Health will evaluate the request.

**Policy:**
**Professional Appearance Expectations:**

All employees are expected to exercise good judgement in their apparel and grooming habits consistent with their position.

1. Clothing worn for work shall be clean, neat, non-tattered, tucked in as appropriate and non-revealing (no excessively tight fitting or low cut clothing).
2. Clothing shall be free of pictures, advertisement and endorsements (except Sentara logo shirts on approved days).
3. Appropriate undergarments must be worn to preserve dignity and appearance and may not be visible through the clothing.
4. Designated uniforms, clothing, jackets and/or scrubs as applicable for assigned occupation shall be worn and maintained by the employee. All uniforms and clothing worn in clinical and patient care areas shall be in good repair, color coordinated, and cleaned daily to ensure hygienic cleanliness for the prevention of infection risks to our patients.
  - a. Home laundering of clothing and departmental uniforms shall be performed according to manufacturer's recommendations and not mixed with items used for environmental cleaning/disinfection in the same load.
  - b. Always wash your hands after handling dirty laundry.
  - c. Home laundering is not allowed for surgical/procedural area scrubs.

**ATTENTION: FOR REFERENCE USE ONLY WHEN PRINTED; PLEASE REFER TO ELECTRONIC DOCUMENT FOR MOST CURRENT VERSION**

5. For divisions or occupations that do not require a uniform, attire is expected to be professional dress:
  - a. No denim of any kind or color. (Except with divisional President or President designee approval on designated days.)
  - b. Tops must have a conservative neckline.
  - c. No tank tops, T-Shirts, or sheer clothing.
  - d. Back and midriff must be covered at all times.
  - e. No leggings, shorts, sweatpants, spandex or lycra material.
  - f. No athletic apparel.
  - g. School, credentialing and Sentara distributed pins may be worn however other items (i.e. jewelry, pins or buttons) that express views about political and other affiliations are not appropriate.
  - h. Sleeveless blouses and dresses may be worn during months designated as business casual, however spaghetti strap shirts and dresses are not allowed at any time.
  - i. Capris, khakis, chinos and polo shirts may be worn in non-patient care areas during months designated for Business Casual attire.
  - j. For divisions or occupations that do not require a uniform, Business Casual attire may be worn during the following months with divisional Presidents' approval:
    - i. November 1<sup>st</sup> through April – Fridays Only
    - ii. May 1<sup>st</sup> through October – Monday through Friday
    - It is expected that employees use good judgment when choosing attire that is appropriate for work. During months that are approved for business casual attire, it is expected that professional dress will be worn as appropriate for Board meetings, when participating in appointments outside the office, to include visits to other divisions and meetings with external visitors.
6. Business units/departments or occupations that have leadership approval may wear non-uniform OR uniform attire that include khakis, chinos and/or polo shirts.

## Shoes

1. Shoes shall be clean and appropriate to the uniform in the area.
  - a. Per OSHA regulations, for safety and employee protection purposes, open toed shoes/sandals are prohibited in any patient care/clinical area.
  - b. Footwear worn by clinical staff shall be professional/hospital/clinical grade, solid surface made of non-absorbent and non-perforated materials (i.e. no perforated CROC style clogs or shoes constructed of nylon or canvas materials.) If clogs are loose fitting, the heel strap shall be worn.
  - c. Open-toed shoes may be worn in non-patient/non-clinical areas or divisions.
  - d. Wearing of shoe covers, considered personal protective equipment (PPE) outside of your immediate patient work area is not an acceptable practice.
  - e. Department specific shoes may be required, such as designated color, slip resistant soles or shoes with hard-toe for safety.
  - f. For non-patient/non-clinical areas or divisions, athletic shoes, "CROC's", thong sandals, flip-flops, slippers, and beach sandals are not acceptable.

## Tattoos, Body Art and Jewelry

1. Jewelry must be appropriate and safe for the area in which the employee is working.
  - a. Visible piercing is strictly limited to pierced ears. (No more than two per ear.)
  - b. Facial, tongue piercing and ear gauging is not permitted and must be removed or covered if unable to remove.
2. Tattoos or body art will be permitted in the workplace except in the following situations:
  - a. Where it could be deemed offensive or controversial to co-workers, customers, patients, vendors or others in the workplace based on racial, sexual, religious, political affiliation, ethnic, or other characteristics or attributes of a sensitive or legally protected nature. (i.e., Tattoos depicting violence, nudity, illegal substances, weapons, etc.)

**ATTENTION: FOR REFERENCE USE ONLY WHEN PRINTED; PLEASE REFER TO ELECTRONIC DOCUMENT FOR MOST CURRENT VERSION**

- b. Excessive tattoos and body art on legs, neck, face and arms such as full and half sleeves will be required to be covered.
- c. If it is determined by Leadership that a tattoo or body art may present such a conflict, the employee will be asked to cover the tattoo or body art with the appropriate uniform, clothing, or material (i.e. bandage or other dressing) unless such covering creates a safety or infection prevention and control concern.

### **Hair, Make-up, Headwear**

1. Hair shall be clean, well groomed, controlled and appropriate for the job.
  - a. Extremes in hairstyles and color are not acceptable.
  - b. Moustaches and beards shall be neat and groomed. Facial hair may not inhibit N95 respirator for those positions requiring fit testing.
2. Headwear such as nursing caps, safety hats/protective caps, or part of department uniform are appropriate.
  - a. Headgear such as baseball caps, visors, du-rags and sweatbands are not acceptable.
3. Employees working in patient care areas should refrain from wearing fragrances as patients may have allergies or be sensitive to smells.
4. All other employees should be sensitive of fragrances that may be offensive or irritating to others.
5. Make-up shall be applied so the colors appear natural and blend with the skin tone. No exaggerated or artificial appearances.

### **Fingernails**

1. Fingernails shall be neat, clean, conservative in color and not chipped.
2. Employees in patient care areas (those dealing with patients, patient equipment, food, medication, and support services departments such as lab, radiology, and food services) shall maintain a conservative nail length at no more than one-quarter inch past the tip of the finger. No artificial nails or jewelry to include extension, tips, gels, including gel polish ("Shellac") and acrylic overlay, resin wraps, acrylic fingernails, glued on nails and appliques are permitted. Refer to the Infection Prevention & Control Procedure #204 Handwashing/Hand Hygiene/Fingernail Hygiene.

### **Personal Protective Equipment (PPE)**

1. Employees shall follow all procedures/processes related to the proper use of PPE for their position.
2. Employees in clinical care areas shall be knowledgeable of and understand the process of Standard Precautions and the proper use of PPE with ALL patients and know how to obtain and use personal protective equipment (protective eyewear, mask, face shield, gloves, shoe covers, and/or fluid-proof gowns) while working with blood/body fluids or equipment containing the same.

### **ID Badge**

1. An official Sentara picture ID shall be worn at all times by employees.
2. Badges shall be worn above the waist with the picture visible.
3. Badges should be current, in good repair, and not defaced by stickers or pins.

### **Off Duty Guidelines and Expectations for Classes, Seminars and Social Functions:**

1. Clothing worn by employees prior to changing into hospital provided scrubs may include walking shorts or jeans that are clean and in good condition.
2. Clothing worn for classes, seminars and social functions shall adhere to this Dress Code and Grooming Policy.

**ATTENTION: FOR REFERENCE USE ONLY WHEN PRINTED; PLEASE REFER TO ELECTRONIC DOCUMENT FOR MOST CURRENT VERSION**

### Procedure:

An environment of mutual cooperation, respect, and fair and consistent treatment for all employees is Sentara's goal. Nonetheless, Sentara is legally responsible for ensuring that no employees are subject to harassment or a hostile work environment. As an initial step toward resolution of any complaint or offense under this policy, Directors/leaders will be responsible for explaining the policy and answering employee questions. If an agreeable solution cannot be reached at that stage, it will escalate to the appropriate leader who will follow company procedures to resolve the issue.

1. **Department Directors/leaders are responsible for the consistent enforcement of the dress code for their particular areas.**
2. Employees who arrive at work inappropriately dressed shall be sent home to change their attire. Non-exempt employees will be asked to clock out.
3. Disciplinary action shall be taken up to and including termination for failure to adhere to the dress code.

Sentara is a diverse organization with various lines of business. Divisional Presidents or their designee may write additional dress code expectations as appropriate for their setting with approval from Human Resources.

### Monitoring:

**Outcomes Monitoring** – Departmental Directors/leaders are responsible for the consistent monitoring and enforcement of the stated Dress Code requirements.

**Document Management** – The COE – Employee Relations Advisor shall be responsible for developing, communicating and maintaining this policy and related procedures and job aids necessary for the implementation and continuance of the policy. This policy shall be reviewed at least every 3- years for repeal or amendment as appropriate.

Revision Date	Revision Description
July 16, 2014	Included information for managing risks in healthcare, including home laundering and personal hygiene.
August 5, 2015	Reviewed and updated to include new divisions.

### Related Documents:

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*Procedures: Surgical Attire in the Surgical Area*

*Infection Prevention & Control Procedure #204, Handwashing/Hand Hygiene/Fingernail Hygiene*

*Employee Conduct Policy 301a*

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*Regulatory References: DNV Managing Infection Risks Standard*

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**ATTENTION: FOR REFERENCE USE ONLY WHEN PRINTED; PLEASE REFER TO  
ELECTRONIC DOCUMENT FOR MOST CURRENT VERSION**



**Policy:** Policy 303 - Drug-Free Workplace and Substance Abuse

**Division:** Sentara Healthcare

**Original Date:** 5/1/2014

**Manual:** Human Resources

**Revision Date:** 2/1/2018

**Section:** Employee Relations

**Approved By:** SVP & CHRO

**Location(s):** Consolidated Courier Services;  
Corporate; Optima; PACE; SAMC; SCH;  
SCOHS; SE; SHH; SHRH; SLC; SLH;  
SMG; SMJH; SNGH;  
SNVMC;SOH;SPAH; SRMG;  
SRMH;Supply Chain;SVBGH;SWRMC

**Process Owner:** Human Resources

Revision Date	Revision Description (Most Recent)
2/1/2018	Update policy to standardize verbiage consistent urinalysis and other drug/alcohol screenings, other minor verbiage tweaks.

**Policy Statement:**

Sentara Healthcare (SHC) has a vital interest in maintaining safe, healthy and efficient working conditions for its employees, as well as a responsibility to provide a safe and healthy environment for its patients and the general public. In addition, SHC needs to protect its property, equipment and operations as part of its stewardship responsibility. This is essential in order to maintain Sentara's reputation and the confidence of the community it services.

SHC employees are not to be involved with the unlawful use, possession, sale or transfer of illegal drugs or controlled substances including alcohol, in any manner which may impair their ability to perform assigned duties or otherwise adversely impact the organization's business. SHC is committed to maintaining a workplace that is free of the influence of drugs/alcohol.

This policy covers all applicants, employees, students in SHC schools and independent contractors who provide services for or through SHC.

**Prohibited Activities**

Any of the following constitutes a violation of the Drug-Free Workplace policy and shall subject an employee to disciplinary action up to and including termination.

- Using, selling, purchasing, transferring, possessing, manufacturing or storing an illegal drug or drug paraphernalia or controlled substance. Attempting or assisting another to do so while in the course of employment or while engaged in an SHC sponsored activity on SHC premises, in organization-owned, leased or rented vehicles or on SHC business or while off the job if SHC determines that the activity adversely affects SHC.
- Working or reporting to work under the influence of an illegal drug or controlled substance, to include alcohol or improper usage of a prescribed drug.
- Switching, adulterating or attempting to tamper with any sample submitted for testing or otherwise interfering or attempting to interfere with the testing process.
- Failing to report for a drug test at an SHC designated collection site or when directed.
- Being arrested or convicted under any criminal drug statute under circumstances which SHC determines adversely affect SHC.

**Notification of Convictions**

Employees must notify management of any criminal drug statute conviction related to drugs or alcohol including but not limited to any conviction for Driving Under the Influence (DUI). Employees must provide this notice within five (5) days after the conviction occurs. Managers are then required to report this information to Human Resources in all situations. When an employee who is participating in research activities is convicted of violating a criminal drug statute, Sentara Healthcare is required to report such conviction to the National Institute of Health.

**ATTENTION: FOR REFERENCE USE ONLY WHEN PRINTED; PLEASE REFER TO ELECTRONIC DOCUMENT FOR MOST CURRENT VERSION**



## Search

Sentara Healthcare reserves the right to carry out reasonable searches of individuals, their personal effects, their lockers, and vehicles when entering the premises, while on company premises and when leaving company premises. The object of searches is to deter the use, possession, transportation, or sale of illegal drugs and alcoholic beverages in order to provide a safe working environment. Such searches may be initiated by Sentara without prior announcement, with reasonable cause and will be conducted at such times and locations deemed appropriate.

Searches may be conducted using management in conjunction with security or federal or local law enforcement officers. Searches may be conducted with the assistance of specially trained dogs.

Employee consent to such searches is required as a condition of becoming and remaining an employee of Sentara Healthcare. An employee's refusal to consent to any such search may result in disciplinary action, up to and including termination.

## Required Reporting

The divisional executive or designee will report to the applicable licensure board any information defined per their regulatory reporting requirements.

## Monitoring:

Outcomes Monitoring – Leadership and Human Resources shall be responsible for monitoring and ensuring adherence to this policy.

Document Management – Employee Relations Center of Expertise shall be responsible for developing, communicating and maintaining this policy and related procedures and job aids necessary for the implementation and continuance of the policy. This policy shall be reviewed at least every 3 years for repeal or amendment as appropriate.

Revision Date	Revision Description
5/1/2017	3 year review; Added Required Reporting section; Placed on system template

## Related Documents:

<i>Policy</i>	Policy 301 – Code of Conduct Policy 301a - Code of Conduct Procedure Policy 303a – Substance Abuse Testing Policy 303b – Employee Assistance Program
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## **Sentara RMH School of Histotechnology**

### **General Rules for Classrooms**

(Revised 6/2/2020)

1. Behavior should be professional at all times this includes; showing respect to fellow students and instructors with seating posture and body language during class and between classes.
2. No food in the classroom or student lab. Drinks are permitted in the lecture room only, not in the lab. Please be careful not to spill drinks on the floor, all drinks must be in a container with a lid.
3. Do not move or rearrange tables and chairs.
4. School library books are for use in classrooms only. Please ask the Program Director if you wish to sign out a book.
5. You may have your cell phones in the classroom but should be set to silent during lecture.
6. No cell phones or any electronic devices permitted in the student lab without permission of instructor. For exam purposes you will need to leave your phone or any electronic devices out of the classroom.
7. Only non-programmable calculators may be brought to the test room.
8. Students are not allowed in the faculty offices unless the faculty instructor is present.
9. No sleeping in the school during class or between classes. Students found sleeping will be asked to return home until properly rested before returning to class. No lying on the floor of the classroom or student lab at any time
10. Noise should be kept to a minimum because we share the building with other classes and offices.
11. During exams no personal belongings will be permitted in the classroom other than your pencil and calculator.

12. All valuable items should be placed in your school locker or vehicle, the school will not be responsible for anything lost or stolen.



## **Sentara RMH School of Histotechnology**

Harrisonburg, VA.

### **CAUSES FOR DISMISSAL**

(Revised 6/2/2020)

1. Failure to maintain a grade point average of 70% in any course or clinical rotation
2. Failure of three consecutive lecture tests in one subject or five quizzes in one subject.
3. One unsatisfactory clinical rotation test, evaluation, or practical.
4. Cheating on any type of evaluation (tests, practical exams, or oral exams etc.)
5. Failure to pass the Comprehensive Exam with a 70%.
6. Failure to follow the rules and instructions of the Student Lab resulting in a failing grade of less than 70% on two or more student labs.
7. Falsification of application materials.
8. Excessive absenteeism and tardiness as addressed in the Sentara RMH School attendance policy.
9. Gross neglect of duty, insubordination, dishonesty or misappropriation of hospital property.
10. Incompetence, falsification of records, disorderly conduct, soliciting for tips.
11. Willful destruction of hospital property.
12. Habits or state of health dangerous to the student, to other students, employees or to patients.
13. Alcohol and/or drug abuse-includes drinking or being drunk on the job.
14. Gambling on hospital premises.
15. Harassment of staff, fellow students or patients.

16. Failure to follow the rules and regulations of Sentara RMH and the school to include the Professional Dress Code.

17. A violation of 2 or more Sentara Red Rules as listed; for example, misidentification of patients or reporting inaccurate results on a didactic or rotation practical exam.

Dismissal from the program for academic reasons will be the last resort. Students will be placed on academic probation and may be offered the chance to repeat the program prior to being dismissed.

All non-academic violations will be brought by the Program Director to the Advisory Committee for review prior to student dismissal.

Students wanting information about their status should contact the school in writing with signature. The school will respond to the student in writing within two weeks of the request for information. Communication regarding dismissal should be in writing between the student and the school.



**School of Histotechnology**  
Harrisonburg, Virginia

**Academic Policies**

(Revised 6/2/2020)

**Policies on Grading and Academics**

The grading system will consist of the following:

90-100 A

80-89 B

70-79 C

Below 70 = unacceptable grade

A minimum of 70% must be maintained in all courses. Below 70% is unacceptable performance.

All tests must be taken on the assigned day or a failing grade is recorded. Exceptions may be made in emergency situations.

If a student fails (below 70%) on two didactic tests, he/she may be put on probation. If a third didactic test is below 70%, the student may be dismissed from the program. Three or more quizzes below 70% may result in the placement of the student on probation. Once on probation, the failure of two additional quizzes may result in dismissal of the student. All probation status will remain in effect for the entire duration of the course, upon successful completion of the course probation may be lifted.

The progress of each student will be communicated to them by posting grades weekly on SharePoint.

**Honor Code Violations**

The Program has a zero tolerance for cheating. If a student is found to be breaking the honor code they will be dismissed from the program. If faculty suspect that a student is cheating, the incident will be reported to the Program Director who will convene a meeting of the Advisory Committee. At this meeting the Program Director will give a report of the incident and the committee will help determine an appropriate disciplinary response. The student may be asked to provide a written statement prior to the meeting.

### Certificate of Completion

The Program awards a certificate upon successful completion of all course requirements. ***The granting of the certificate is not contingent upon the student's passing any type of external certification or licensing examination.*** In addition, an official grade transcript is provided to the student. For 3+1 students, grade transcripts will be forwarded to their university or college. It is recommended that students receive a total of 30+ semester credit hours for their year of attendance by their respective university. Each credit hour correlates approximately to 8 clock hours for lecture. Each credit hour correlates approximately to 32.5 clock hours for the practicum portion.

Transcripts of grades include the following:

<b><i>Course</i></b>	<b><i>Grade</i></b>	<b><i>Suggested Credits</i></b>
HTL 511 Orientation		1
HTL 502 Fixation and Microanatomy		2
HTL 503 Processing/Embedding		2
HTL 504 Microtomy		2
HTL 505 Staining and Immunohistochemistry		6
MT 408 Clinical Laboratory supervision and Management		1
MT 409 Education and Research		1
HTL Fixation Practicum		1
HTL 508 Processing/Embedding Practicum		3
HTL 509 Microtomy Practicum		6
HTL 510 Staining Practicum		5



## **SRMH School of Histotechnology**

### **Admissions Policy**

**(8/11/2020)**

Applicants must complete the following from an accredited institution of higher learning:

- Students must have either a bachelor's degree from a regionally accredited college/university or be guaranteed one upon the completion of the clinical year.
- 30 semester hour credits in chemistry and biology (a minimum of 12 semester credit hours in each of chemistry and biology)
- One college level mathematics class
- A minimum grade point average of 2.5 on a 4.0 scale
- Submit an official college/university transcript. All prerequisite course work must be completed prior to admission to the program.
- Applicants who have met the minimum academic requirements more than seven years prior to application will be required to update by taking one course in chemistry and one course in biology

Admission criteria include a personal interview, analysis of college transcripts, review of three letters of recommendation and evaluation of personal written statement. In addition, essential functions are required for admission. Applicants will be notified of acceptance by letter.

Degrees from colleges/universities outside of the United States and Canada must be evaluated by a foreign transcript evaluation agency acceptable to ASCP. Please visit the ASCP website for the most recent list of acceptable evaluation agencies for foreign transcripts.

The student baccalaureate degree must be from a regionally accredited United States college/university or an accredited Canadian university accredited by an association acceptable to ASCP. Regionally accredited colleges or universities are accredited by one of the following associations acceptable to ASCP:

- MSA – Middle States Association of Colleges and Schools
- NWCCU – Northwest Commission on Colleges and Universities
- NCA-HLC – North Central Association of Colleges and Schools
- NEASC-CIHE – New England Association of Schools and Colleges, Inc.
- SACS/CC – Southern Association of Colleges and Schools/Commission on Colleges
- WASC-ACCJR – Western Association of Schools and Colleges



**NOTE: We will prepare you for the lab portion of the ASCP exam or any certification exam. We cannot change the non-lab (experience and/or undergraduate accreditation) requirement for any certification exam. We cannot guarantee that you will be able to sit for any exam.**

Students are admitted twice a year for classes beginning in January and June.

## Academic Affiliations

The Sentara RMH School of Histotechnology is affiliated with:

- George Mason University, Fairfax, VA
- Shippensburg University, Shippensburg, PA
- Eastern Mennonite University, Harrisonburg, VA
- Mary Baldwin University, Staunton, VA
- Radford University, Christiansburg, VA



## **Sentara RMH School of Histotechnology**

(Revised 8/11/2020)

### **Transfer Credit**

The school does not give credit for work completed at other institutions. Credits earned at the school are transferable to another institution at the sole discretion of the accepting institution.



## **Sentara RMH School of Histotechnology**

### **Refund Policy**

(Revised 6/2/2020)

If a student withdraws from the program, a refund may be requested. Notice of withdrawal should be submitted in writing to the Program Director of the School of Histotechnology. (This refund policy applies to the \$100 deposit and \$5,000 tuition).

The refund policy is as follows:

- A. A student who enters the school but withdraws or is terminated during the first quartile (25%) of the program shall be entitled to a minimum refund amounting to 75% of the cost of the program.
- B. A student who withdraws or is terminated during the second quartile (more than 25%, but less than 50%) of the program shall be entitled to a minimum refund amounting to 50% of the cost of the program
- C. A student who withdraws or is terminated during the third quartile (more than 50%, but less than 75%) of the program shall be entitled to a minimum refund amounting to 25% of the cost of the program.
- D. A student who withdraws after completing more than three quartiles (75%) of the program shall not be entitled to a refund.

A student applicant may cancel by written notice, their enrollment at any time prior to the first class day of the session for which application was made. When cancellation is requested under these circumstances, the school will refund all tuition paid by student, less a maximum tuition fee of \$100.00.

A student applicant will be considered a student the first day of class.



## Sentara RMH School of Histotechnology

Harrisonburg, Virginia

### **Attendance & Late Policy**

(Revised 11/4/2020)



#### **Attendance:**

Academic success begins with good attendance. Students are expected to be present for all scheduled classes and clinical rotation days. All unexpected absences must be reported to the school (540-564-7232) prior to the start of the day's classes. Failure to notify the school of an absence will result in the absence being considered unexcused.

Personal days are not generally considered excused absences. If a student needs time off for a wedding, funeral or job interview they should request approval from the Program Director prior to the absence.

Sick days: Students who are ill should not attend classes to avoid spreading the illness to faculty and classmates. If a student misses three days in a row due to illness, a doctor's written excuse is required to return to classes and for the absences to be considered excused.

Unexcused absences will be subject to the following disciplinary action:

- 1 Unexcused absence – counseling session with Program Director and Education Coordinator
- 2 Unexcused absences- probation
- 3 Unexcused absences may result in the student being dismissed from the program. A student dismissed because of unsatisfactory attendance will not be readmitted to the program.

In addition, for each unexcused absence, 5 percentage points will be subtracted from the student's professionalism grade which is included in the Orientation course.

If more than five days are missed during the clinical rotation, the student may be required to make up missed time.

Students will be considered withdrawn from the program after missing 14 calendar days in a row (including weekends & holidays) after the student's last date of attendance.

Make-up work due to absences during the didactic portion of the program: it is the student's responsibility to obtain lecture notes from another student.

#### Late to Class:

Late is defined as being one minute past the time that the class or clinical rotation begins. For example, if a rotation is scheduled to begin at 8:00 AM, 8:01 is defined as late.

Five or more days late per didactic portion or rotation will be considered tardiness and may be reason to put a student on probation. Seven or more days late per didactic portion or rotation is unacceptable, and may be cause for dismissal. If you will be 5 minutes late, you must call the school. Extenuating circumstances such as emergencies or car trouble will be evaluated on a case-by-case basis.

**For exams, you must be in your seat and ready to start prior to the scheduled start time for each exam. If you are one minute past start time for a test, you will be deducted 10 percentage points from the exam and will not be granted extra time to complete the exam.**

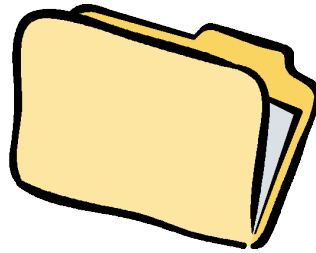
**Plan to be in your seat and ready five minutes before the test begins.**



## Sentara RMH School of Histotechnology

### Student Records

(Revised 6/2/2020)



All student records will be maintained permanently.

Student confidentiality is maintained by locked offices, files, and filing cabinets. A student may obtain his/her student records and/or financial records by written request with signature. Records of grades and/or financial history will not be released to anyone without written request from student with signature.



## Sentara RMH School of Histotechnology

### **STUDENT EMPLOYMENT AND SERVICE WORK POLICY**

(Revised 6/2/2020)



Understanding that employment during the clinical year is sometimes a necessity, such employment is left up to the discretion of the individual student. When considering this option, the student should remember that the clinical program is a minimum of 40 hours each week, not including preparation and study time outside of the clinical setting. While outside employment is a student decision, the Program Director may counsel the student should academic work begin to decline.

Following completion of the first clinical rotation, students may be eligible to apply to work weekends, evenings or holidays according to hospital employment policies, based on position availability. This employment is an option to the student, and compensation will be monetary. When students work for pay, they are responsible to the hospital, as any other employee, and this work has no connection to the requirements of the student by the School of Histotechnology. Again, work is contingent upon position availability within the laboratory, and will be handled by the School of Histotechnology as any other form of employment would be handled.

Service work by students in clinical settings outside of academic hours must be noncompulsory.

Students may not be substituted for regular staff during their student experiences.



## **Sentara RMH School of Histotechnology**

### **COMPETENCY STATEMENTS\***

(Revised 6/2/2020)

The following competencies are for all the areas of the histology laboratory. Measurement of all competencies is the minimum of 70% on all evaluation mechanisms to include written tests, laboratory practicals, oral exams, student lab worksheets and rotation evaluations.

The Sentara RMH School of Histotechnology graduate with regard to laboratory operations and the performance of basic and special laboratory procedures involving Fixation, Processing/Embedding, Microtomy and Staining at career entry, the Histotechnologist:

#### **DEFINES OR IDENTIFIES PRINCIPLES OF**

1. Methods
2. Terminology
3. Reactions and results
4. Sources of error
5. Anatomy, histology, physiology, biochemistry and pathology
6. Standard operation procedures of methods and instrumentation
7. Management and education

#### **SELECTS OR PREPARES APPROPRIATE**

8. Methods
9. Procedural courses of action
10. Reagents
11. Instruments
12. Controls

#### **CALCULATES RESULTS**

13. Calculates results

#### **CORRELATES REACTIONS OR RESULTS OF BASIC AND SPECIAL METHODS WITH**

14. Anatomy
15. Histology
16. Physiology
17. Biochemistry or pathology to assess procedures

#### **EVALUATES REACTIONS, RESULTS, METHODS TO**

18. Assist in ascertaining disease states
19. Check for common and unusual problems



- 20. Take corrective action
- 21. Verify quality control
- 22. Assess validity
- 23. Assure laboratory safety
- 24. Check for potential sources of error

**DEMONSTRATES BEHAVIOR APPROPRIATE FOR A PROFESSIONAL HISTOTECHNOLOGIST WITH REGARD TO**

- 25. Ethics and integrity
- 26. HIPPA regulations and patients
- 27. Professionalism
- 28. Continued professional career growth, development and maintenance
- 29. Laboratory safety

\*Original from ASCP Histotechnologist Competencies



## Sentara RMH School of Histotechnology

### Students' Rights and Privileges

(Revised 6/2/2020)

1. **Counseling:** Confidential counseling assistance is available to students experiencing any personal problems. The Program staff will provide more information if requested. Confidentiality is maintained during all student-counseling sessions.

There is an open-door policy with the program director and the histotechnology instructor. Students may seek advice or counseling at any time throughout the year.

One formal counseling session with the program director and the histotechnology instructor will be scheduled. Additional formal sessions will be held if the student is experiencing problems.

If a student has concerns/problems within the didactic phase of the Program, the student should first discuss the matter with the respective instructor. If not satisfied with the response, the student may then contact the Program Director for further discussion.

After each rotation, the student will receive an evaluation completed by the department. This is an additional opportunity for the student to receive counseling when this evaluation is discussed between the Program Director and the student.

During the clinical rotation portion of the program, the program director and education coordinator will contact the student regarding career planning. Students will be advised on how to write a resume and will be given information regarding job openings both within Sentara labs and at other healthcare facilities.

2. **Complaints:** Student complaints should be brought to the Program Director. If the complaint cannot be solved by the Program Director and the student, and it involves the entire class, then a class meeting will be held. The group will discuss the complaint and decide on a resolution that is acceptable to all concerned. Complaints will be addressed in a timely manner so that a resolution may be reached quickly with the satisfaction of everyone. Complaints will be handled within the framework of the Program and hospital policies. Respect for all involved is of utmost importance to the Program. If another department in the hospital is involved, the Program Director will contact the other department. It is felt that open communication will help to prevent any unhappiness from escalating into a complaint. Students will not be subject to unfair actions by faculty in response to complaints.

3. **Respect:** Students have the right to respect from the Program Director, all instructors and fellow students.
4. **Leave of absence:** It is recognized that interruptions may occur for various acceptable reasons, such as an accident, illness, or pregnancy. Each request for interruption of the program will be considered on an individual basis. When a subject has been completed in its entirety, including both lecture and clinical rotation, credit will not be lost by interruption of the program. Partial credit would be given if at least three months of the program had been completed. Re-entrance for such interrupted training is dependent on space availability, academic standing at the time of the interruption, and length of interruption interval. Interrupted training must be reinstated within a two-year period.
5. **Voluntary Withdrawal:** A student may withdraw from the Program at any time.
6. **Safety:** Student safety is of the utmost concern for the hospital and school, and precautions to protect that safety will be maintained. Safety policies required by CAP and DNV and other accrediting agencies will be followed by the hospital and school.
7. **Laboratory work during clinical rotation:** Students may not be substituted for regular staff during their student experiences.
8. **Library Use:** The SRMH Library will provide up to 10 free interlibrary loan photocopies for students who are enrolled in the Program. Thereafter, an \$8.00 charge will be assessed per article. Students may check out books from the library.
9. **Achievement:** Students who demonstrate outstanding achievement while on rotation may advance to the next rotation (eliminate all or a portion of a rotation) by meeting the following criteria:
  - a. Pass a rotation practical, evaluation and written exam with a grade of "C" or better.
  - b. Meet all objectives including the cognitive, affective and psychomotor learning domains for that rotation.
  - c. Must have completed prior clinical laboratory experience in that section for two years minimum under the supervision of a certified pathologist within the last five years.
  - d. Must have the recommendation of the program director and the lab department manager before eliminating one or part of a rotation.

**Student Responsibilities:** The student will demonstrate the following affective, professional and ethical behavior:

1. Demonstrate an effort to achieve professional excellence by showing initiative to do extra tasks and show a willingness to complete unsolicited tasks.
2. Prepare for daily class assignments in an organized fashion and participate in class discussions (volunteers in class to answer questions and actively discuss class issues). Lack of preparation for class may be demonstrated in failing quiz grades.
3. Accepts and acts on advice from instructors
4. Does not argue with the instructor or solicit other students to argue with the instructor.
5. Assumes responsibility for behavior by following rules and policies. For example, follows the dress code and rules of the classroom.
6. Displays confidence, yet recognizes limitations of being a student.
7. Acts in a professional manner and maintains patient confidentiality according to HIPPA rules.
8. Works well in the School of Histotechnology as a team member with the other students and instructors. Contributes to the initiatives at hand in a positive manner.
9. Demonstrates respect to fellow students as well as instructors.
10. Reports to class on time and is present on all days as assigned.
11. Demonstrates hospitality standards of the profession and hospital to all students and instructors. Shows courtesy to other students and instructors similar to the hospitality they would show a guest in their home.



## Sentara RMH School of Histotechnology

### Library Resources

#### **Sentara RMH Virginia Funkhouser Health Sciences Library / Sentara RMH Medical Center**

2010 Health Campus Drive  
Harrisonburg, VA 22801

540-689-1777 phone  
500-689-1770 fax  
RMH\_RMHLibrary@sentara.com

**8:00AM – 4:30PM Monday – Friday**

**1 FTE professional staff:**      **Megan D. Khamphavong, MSLS**  
Librarian  
8 years post-degree professional experience in health sciences libraries; at Sentara RMH since 2007

**Facility:**      1,400 sq. ft.  
Opened in May 2010  
9 study carrels (7 outfitted with PCs)  
1 network Xerox WorkCentre photocopier / fax / printer / scanner

**Collections & Services:**      ***6,000+ print and electronic resource titles, of which***

- ~4,400 are clinical, including 22 anatomic models
- ~1200 in Leadership, management, business administration, medical staff & governance
- ~200 in Training & development (primarily audiovisuals)
- ~300 in Grief

***5,000+ titles of print and electronic journals related to health/medicine***

- with subject specific titles that include the following areas related to clinical laboratory science:
  - anatomy
  - cytology
  - histocytochemistry
  - laboratory techniques and procedures
  - microbiology
  - microscopy
  - mycology

- parasitology
- pathology
- physiology
- virology

***Research and reference databases, plus specialty search tools available through the EBSCO Discovery Service***

- Research and reference databases
  - Biomedical Reference Collection: Comprehensive
  - CINAHL Plus with Full Text
  - Cochrane Collection Plus
  - eBook Collections
  - Education Source
  - ERIC
  - GreenFile
  - Health Business Elite
  - LISTA
  - MEDLINE with Full Text
  - Nursing and Allied Health Collection: Comprehensive
  - PsycEXTRA
  - Psychology and Behavioral Sciences Collection
  - SocINDEX
- Specialty resources
  - DynaMed
  - Nursing Reference Center Plus
  - Micromedex
  - Lexicomp
  - Natural Medicines
  - Scientific & Medical ART Imagebase (SMART)

***CyberTools electronic integrated library system that includes***

- an electronic, searchable web-based catalog that documents the resources in the SRMH VFHSL collection

***Consolidated acquisitions for information resources across departments within Sentara RMH Medical Center and the Medical Group***

***Interlibrary loan and article copy services, including***

- membership and participation in the National Network of Libraries of Medicine

***Mediated literature searching and individual, as well as group training offered in search techniques***



## **Sentara RMH School of Histotechnology**

### **HTL 511 Orientation Lecture Objectives**

The HTL student will at the completion of the Orientation course, reading assignments, and exercises with an accuracy of 70% on a written exam:

1. Recognize agencies in hospital and lab regulation.
  - ASCP
  - CAP
  - CLIA
  - AABB
  - OSHA
  - JCAHO
  - DNV
2. Describe quality assurance in the lab including:
  - Controls
  - Validation
  - Verification
  - Calibration
  - Proficiency testing
3. Define:
  - Laboratory information system
  - Healthcare Information system
  - Electronic medical Record
4. Define and demonstrate HIPAA regulations.
5. Describe security and patient safety and how changes have occurred over the years to increase safety and security.
6. Explain Six Sigma and Lean and importance in the laboratory.
7. Define and demonstrate ethics.
8. Define and demonstrate professionalism.
9. Describe the HTL certification process.
10. Discuss histotechnology career possibilities.
11. Demonstrate and recognize chemical, mechanical, and biological hazards in the lab.
12. Describe infections agents, diseases associated and prevention of:
  - HIV
  - HCV
  - HBV
  - TB
  - CJD
13. Demonstrate proper handwashing and universal precautions.

14. Define engineering controls and relate to their use in the lab.
  - Fume hoods/Ventilation systems
15. Describe mechanical hazards and OSHA regulations in the lab.
  - Sharps injuries
16. Define TWA, PEL, STEL of chemicals routinely used in the lab.
17. Identify hazardous chemicals that are routinely used.
18. Determine storage, disposal, and spill cleanup for hazardous chemicals.
19. Recognize pictograms and chemical labeling.
20. Define and locate SDS.
21. Describe and demonstrate fire safety and the use of:
  - NFPA diamonds
  - Fire extinguishers
  - P.A.S.S
  - R.A.C.E
22. Define ergonomics and relate to possible hazards in histology.
23. Recognize and respond the hospital codes.
24. Utilize bomb threat cards in the even of a threatening phone call.
25. Demonstrate basic lab math and solution prep that is commonly used in histology.
  - Percentages
  - Weight per volume
  - Volume per volume
  - Dilutions
  - Metric conversions
  - Gravimetric factor
  - Temperature conversions
26. Define pH and buffer solutions.
27. Recognize common instrumentation utilized in the histology lab:
  - Embedding center
  - Microtomes
  - Microscopes
  - Tissue processor
  - Water bath
  - Stainer
  - Oven
  - Cover slipper
  - pH meters
  - Microwaves
28. Correlate maintenance of all instruments with laboratory quality control.
29. Define common prefixes, suffixes, and root words in medical technology.



## Orientation Course—MLS and HTL Schools

### Orientation Grade; Professionalism, Ethics, and Affective

**Behavior**—Counts  $\frac{1}{2}$  of Orientation Grade. To be averaged with the Orientation written exam at the completion of the didactic segment of the program.

## Objectives

The student will be able to demonstrate the following affective, professional, and ethical behavior during the didactic portion of the program with a minimum of 70% on the following characteristics:

*(student will be rated on the Professionalism grid and a grade will be calculated as per the grid)*

1. Demonstrate an effort to achieve professional excellence by showing initiative to do extra tasks and show a willingness to complete unsolicited tasks.
2. Prepare for daily class assignments in an organized fashion and participate in class discussions (volunteers in class to answer questions and actively discuss class issues). Does not argue with the instructor or solicit other students to argue with the instructor. Lack of preparation for class may be demonstrated in failing quiz grades.
3. Accepts and acts on advice from instructors.
4. Assumes responsibility for behavior by following rules and policies. For example, follows the dress code and rules of the classroom.
5. Displays confidence, yet recognizes limitations of being a student.
6. Acts in a professional manner and maintains patient confidentiality according to HIPPA rules.
7. Works well in the MLS and HTL School as a team member with the other students and instructors. Contributes to the initiatives at hand in a positive manner.
8. Demonstrates respect to fellow students as well as instructors.
9. Reports to class on time and is present on all days as assigned.
10. Demonstrates hospitality standards of the profession and hospital to all students and instructors. Shows courtesy to other students and instructors similar to the hospitality you would show a guest in your home.

Professionalism Objectives



## HTL 511 Orientation



**Instructors:** Shana R. Splawn, HTL(ASCP)<sup>CM</sup>

**Method of Instruction:** Lecture, discussion, question, and answer

**Goal:** To educate the student in laboratory safety, professionalism, ethics, , quality assurance, method validation and statistical approaches to data evaluation so that they may function as an entry level medical laboratory scientist or histotechnologist.

**Textbook:**

Carson, Freida L. (2020) Histotechnology: A Self-Instructional Text. 5th ed. ASCP Press.

Suvarna, S. Kim (2019) Bancroft's Theory and Practice of Histological Techniques. 8th ed.  
Churchill Livingstone Elsevier

Extensive handouts will be utilized in the class.

**Pre-requisite Courses:**

A four-year degree with required courses in chemistry and biology and math for entry into the Sentara RMH HTL School.

## ORIENTATION LECTURE SCHEDULE

DATE:

TOPIC:

READING ASSIGNMENT:

1/3/24

### **I. Introduction to the Lab and Healthcare**

Carson, pg. 344-350

Healthcare Regulatory Agencies: ASCP, CAP, CLIA,

AABB, JCAHO, DNV

Quality Assurance: Controls, Validation, Verification

Calibration, Proficiency Testing

Security and Patient Safety: Laboratory Information System

Healthcare Information System, Electronic Medical Record

Medical Ethics and Professionalism

HTL Certification

1/4/23

### **II. Laboratory Safety**

Carson, pg. 1-12

Chemical Hazards: Storage, Disposal, SDS (Safety Data Sheets),

Pictograms

Bancroft, pg. 12-24

Biological Hazards: Infectious agents, Prevention

Mechanical Hazards: PPE (Personal Protective Equipment)

and Environmental Controls

Fire Safety: NFPA, Extinguishers, R.A.C.E, P.A.S.S.

Ergonomics

Sentara Policy: Codes and Bomb Threat Cards

1/5/24

### **III. Laboratory Math and Solution Prep**

Carson, pg. 45-54

Percentage: Weight per volume, Volume per volume

Handouts

Dilutions, Metric Conversions, Molar and Normal Solutions

Gravimetric Factor, Temperature Conversion

1/8/24

### **IV. Instrumentation in the Histology Laboratory**

Carson, pg. 14-39

Microtomes, Microscopes, Embedding Center, Tissue Processor

Water Bath, Oven, Automated Stainer, Coverslipper, pH Meter

Microwaves

## ORIENTATION LECTURE SCHEDULE

DATE:

TOPIC:

READING ASSIGNMENT:

Maintenance

1/9/24

**VI. Medical Terminology and Histology Case Study**

Medical Terminology: Prefixes, Suffixes, Root Words

Histology Case Study

1/10/24

**FINAL EXAM**



## **Sentara RMH School of Histotechnology**

### **HTL 502 Fixation and Microanatomy Lecture Objectives**

The HTL student will at the completion of the Fixation and Microanatomy course, reading assignments, and lab exercises with an accuracy of 70% on a written exam, practical, or oral exam:

#### Fixation Objectives

1. Describe the role fixation plays in general histology
2. Describe the functions of fixation and how they impact tissue specimens
3. Describe each function of fixation
4. Implicate time as a factor in fixation
5. Identify the criteria for fixed vs autolyzed tissues
6. Relate the notion of refractive index to tissue sections and the impact on fixation
7. Correlate the volume ratio principle with specimen size
8. Analyze outside influences on fixation
  - Temperature
  - Size of specimen
  - Tissue to fixative volume ratio
  - Time
  - Tissue storage
  - pH
  - Osmolality
9. Categorize fixation factors by chemical characteristics
10. Predict cellular effects of fixation
11. Define formaldehyde as a chemical and fixative
12. Differentiate between formaldehyde and formalin

13. Describe the process of formalin fixation
14. Assess the formation of formalin pigment
15. Detail the steps to eliminate formalin pigment
16. Analyze variations of formalin
17. Cite general hazards of formalin
18. Characterize glutaraldehyde and differentiate it from other aldehyde fixatives
19. Describe exposure hazards for glutaraldehyde
20. Characterize glyoxal, differentiating it from other aldehyde fixatives
21. Detail the hazard risks for glyoxal
22. Describe general categorize features of precipitate and oxidizing fixatives
23. Detail fixation method and characterize chemical hazards
  - Acetic acid
  - Alcohols
  - Acetone
  - Osmium tetroxide
  - Potassium dichromate
  - Chromic acid
24. Analyze chromium pigment as a side product of fixation
25. Describe and categorize features of mercurials, picrates, zinc salts and HOPE fixatives
26. Detail fixation method and characterize chemical hazards
  - Mercuric chloride
  - Picric acid
  - Zinc chloride
  - HOPE
27. Analyze mercury pigment as a side product of fixation
28. Differentiate between compound and non-aqueous fixatives
29. Characterize the following fixatives
  - B-5

- Bouins
- Gendre
- Hollande
- Zenker
- Helly
- Susa
- Zamboni
- Orth
- Carnoy
- Clarkes

30. Analyze the counterbalancing effects of compound fixatives
31. Describe the importance of transport mediums and how they differ from fixatives
32. Define artifact, endogenous and exogenous pigments
33. Differentiate between Hematogenous vs Non-hematogenous pigments
34. Discover the source of histologic pigments
35. Characterize/differentiate the optical activity of pigments
36. Correlate presentation of pigments with clinical diagnosis
37. Detail pigments impact on histological stains
38. Correlate autolysis and its effects on fixation
39. Categorize issue in fixation applying troubleshooting common errors
  - Delayed fixation
  - Incomplete fixation
40. Identifying the micro and macroscopic difference between well fixed and poorly fixed tissues
41. Examine fixation considerations prior to tissue processing
42. Analyze and identify the effects of poor fixation on immunohistochemistry

#### Microanatomy Objectives

43. Define the basic tissue types and what makes them unique
44. Identify classifications of epithelia and examples of tissues where they reside

45. Characterize surface modifications of epithelia and their functions
46. Evaluate glandular basis of tissue
  - Categorize glandular type tissue based upon morphology
47. Differentiate various fibers, cells, and ground substance of connective tissue
48. Describe features of adipose tissue
  - Differentiate white from brown adipose tissue
49. Identify cell lines involved with hematopoiesis
50. Classify morphologic features of bone marrow sections
51. Cores and smears
52. Determine differences between bone marrow vs. peripheral blood smears
53. Evaluate morphologic components of bone specimens
  - Cortical vs spongy bone
54. Analyze the processes of bone epiphysis
55. Differentiated between types of muscle tissue according to morphology
56. Overview the common morphologic components of neurons
  - Classify neuron types
57. Differentiate protective tissues that line the central nervous system
58. Identify the morphologically distinct constituents of the spinal cord
59. Classify glial support cells from other neural tissue
60. Establish the major morphologic features of brain tissue
61. Distinguish the structural layers and features of the peripheral nervous system
62. Overview structural layers of the circulatory system
63. Define tissues layers of blood vessels
64. Compare and contrast arteries versus veins
65. Analyze the features of elastic tissues in blood vessels
66. Overview the component layers of the heart
  - Demonstrate Purkinje fibers as a unique feature of heart tissue
67. Differentiate between each form of lymphoid tissue



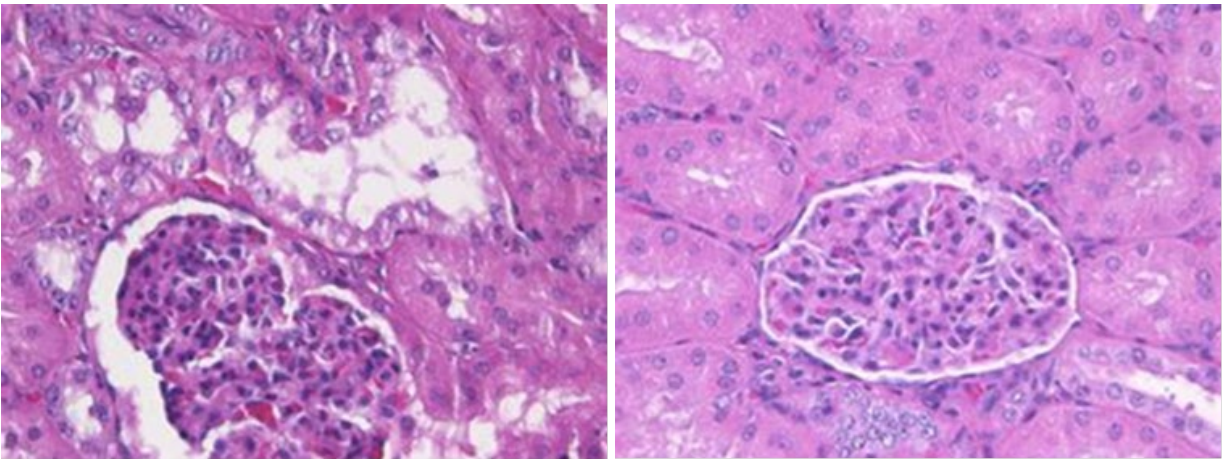
68. Identify morphologic presentation of lymph node
  - Correlate role of reticulin fibers in lymph node morphology
69. Characterize cellular features of the spleen according to sections of red and white pulp
70. Describe the cellular features of the thymus
71. Overview layers of the skin and relate their histologic constituents familiar with each layer
72. Characterize skin glands and their identification particular to a given layer
73. Formulate a method for differentiating skin from other like tissue sections
74. Overview major constituents of cellular components of the upper gastrointestinal tract
75. Analyze differentiating junctions between the esophagus and gastric tissue
76. Identify specific cells contribution to gastric tissue
77. Overview layers of the large and small intestines
  - Identify absorptive features of the small bowel
  - Compare and contrast the epithelium of the digestive system
  - Characterize unique morphologic variability between segments of the small intestines
78. Differentiate between segments of the small bowel according to their unique morphologic components
79. Survey degrees of hepatic structures
80. Classify layers of the gallbladder
81. Overview common structures of the kidney following from the renal pelvis through the urethra
82. Characterize bladder tissue according to its unique transitional epithelia
83. Differentiate tubular structures of the ureter and urethra
84. Compare and contrast features of the male and female urethra
85. Describe features of the thyroid gland
86. Contrast parathyroid with thyroid tissue
87. Differentiate between exocrine/endocrine glands of the pancreas
88. Classify layers of the adrenal gland and their role in tissue function and identification
89. Characterize and differentiate the major cellular components of the male reproductive organs
  - Testicle and prostate

90. Characterize and differentiate the major cellular components of the female reproductive organs
  - Uterus, ovaries, fallopian tubes, placenta, and breast tissue
91. Identify uterus tissue according to hormone stimulation
92. Classify features of vaginal tissue
93. Determine cellular features of the respiratory system from trachea to alveoli
  - Identify common morphologic features differentiating nasal tissue from trachea and other respiratory epithelium
  - Differentiate between type I and II alveolar cells
94. Overview morphologic features of the eye
95. Characterize cellular layers of the retina
96. Identify common pathologic nomenclature and their definitions
97. Characterize the criteria for determining benign vs. malignant masses according to their
  - Differentiation
  - Rate of growth
  - Local invasion
  - Metastasis
98. Classify necrosis according to morphological patterns and identify tissues by those patterns
99. Describe microscopic identification of cancer cells



## Sentara RMH School of Histotechnology

### HTL 502 Fixation and Microanatomy



**Instructor:** Shana Splawn, MBA, HTL(ASCP)<sup>CM</sup>

**Goal:** To educate students in routine histology fixation and microscopic anatomy so that they may function as a histotechnologist in a surgical pathology laboratory.

**Method of Instruction:** Lecture, discussion, slide review, question and answer.

**Prerequisites:** Students should possess the following.

- Bachelor's degree
- 30 semester hours of chemistry and biology
- One college level math course

**Required Texts:**

Carson, Freida L. (2020) *Histotechnology: A Self-Instructional Text*. 5<sup>th</sup> ed. ASCP Press.

Suvarna, S. Kim (2019) *Bancroft's Theory and Practice of Histological Techniques*. 8<sup>th</sup> ed. Churchill Livingstone Elsevier

Brown, Richard W. (2009) *Histological Preparations: Common Problems and Their Solutions*. College of American Pathologists.

**Instructions:** Bring texts to class every day.

## FIXATION LECTURE SCHEDULE

<u>DATE:</u>	<u>TOPIC:</u>	<u>READING ASSIGNMENT:</u>
2/16/24	I. <u>Intro to Fixation</u> <ul style="list-style-type: none"><li>• Principle of fixation</li><li>• General features</li></ul>	Carson, p. 56-58 Brown, p. 1-2 Bancroft, p. 40-42, 74
2/19/24	II. <u>Fixation Factors</u> <ul style="list-style-type: none"><li>• Influencing features<ul style="list-style-type: none"><li>○ Temperature</li><li>○ Size/ratios</li><li>○ Time</li><li>○ Storage</li><li>○ Osmolality</li><li>○ pH</li></ul></li></ul>	Carson, p. 58-62 Bancroft, p. 50-52
2/21/24	<b><u>Fixation Exam 1</u></b>	
2/23/24	III. <u>Aqueous Fixatives 1</u> <ul style="list-style-type: none"><li>• Formaldehyde</li><li>• Other aldehyde fixatives</li></ul>	Carson, p. 62-67 Bancroft, p.44-48, 56, 221-222, 437-438
2/26/24	IV. <u>Aqueous Fixatives 2</u> <ul style="list-style-type: none"><li>• Precipitate/oxidizing fixatives</li></ul>	Carson, p. 66-67 Bancroft, p. 43, 48-49, 57-59, 222
2/28/24	V. <u>Aqueous Fixatives 3</u> <ul style="list-style-type: none"><li>• Mercury fixatives</li><li>• Picrates</li><li>• Zinc salts</li><li>• HOPE fixatives</li></ul>	Carson, p. 67-71 Bancroft, p. 48-50, 56-58
3/1/24	<b><u>Fixation Exam 2</u></b>	
3/5/24	VI. <u>Compound Fixatives</u> <ul style="list-style-type: none"><li>• Combinations of aqueous fixatives</li></ul>	Carson, p. 72-76 Bancroft, p. 50, 56-59
3/7/24	VII. <u>Fixative Pigments</u> <ul style="list-style-type: none"><li>• Hematogenous/Non-hematogenous</li><li>• Optical pigment activity</li><li>• Clinical correlations</li><li>• Impacts on stains</li></ul>	Carson, p. 78, 234 Brown, p. 8 Bancroft, p. 198-206, 221-228
3/8/24	VIII. <u>Incomplete Tissue Fixation</u> <ul style="list-style-type: none"><li>• Autolysis</li><li>• Troubleshooting</li></ul>	Carson, p. 78-81 Brown, p. 3-5, 7-8, 143 Bancroft, p. 74, 373-374

## FIXATION LECTURE SCHEDULE

DATE:

TOPIC:

READING ASSIGNMENT:

- Identifying microscopically
- Effects on immunohistochemistry

3/11/24

### **Fixation Exam 3**

3/13/24

Cumulative Review

3/15/24

### **Fixation Final Exam**

## MICROANATOMY

1/15/24

I. Intro to Microanatomy

diFiore, p. 43-83

1/17/24

II. Epithelia and Connective Tissue

1/19/24

III. Hematopoiesis, Bone and Muscular Tissue

diFiore, p. 87-165

1/22/24

IV. Brain and Neural Tissue

diFiore, p. 171-213

1/24/24

V. Circulatory and Immune Systems

diFiore, p. 217-257

1/26/24

### **Exam 1 – Microanatomy**

1/29/24

VI. Integumentary System and Upper GI

diFiore, p. 260-281, 313-337

1/31/24

VII. Lower GI and Accessory Digestive Organs

diFiore, p. 341-385

2/2/24

VIII. Urinary and Endocrine Systems

diFiore, p. 417-473

2/5/24

### **Exam 2 – Microanatomy**

2/7/24

IX. Male and Female Reproductive Systems

diFiore, p. 477-555

2/9/24

X. Respiratory and Sensory Organs

diFiore, p. 389-413, 563-571

2/12/24

XI. Overviewing Pathology

### **Exam 3 – Microanatomy**

2/14/24

Microanatomy Review

2/16/24

### **Final Exam – Microanatomy**

2/19/24



## **Sentara RMH School of Histotechnology**

### **HTL 503 Processing/Embedding Lecture Objectives**

The HTL student will at the completion of lecture on processing/embedding, reading assignments, and lab practice with a minimum accuracy of 70% on a written exam, practical, or oral exam:

#### Lecture 1:

1. Describe the central principle of processing
2. Depict each of the stages of processing generalizing their roles
3. List and explain factors affecting processing rate
4. Compare/contrast forms of tissue processors
5. Describe the importance of general processor maintenance

#### Lecture 2:

6. Identify the items commonly found on a gross bench
7. Describe the events in performing gross dictation
8. Differentiate between small and complex tissue submission
9. Characterize different methods in obtaining tissue biopsies

#### Lecture 3:

10. Apply Fick's law as a principle of tissue processing
11. Describe the importance of tissue porosity
12. Relate the effects of fixation to tissue porosity
13. Outline the chemical and physical influence of processing reagents
14. Examine the major components of a general closed tissue processor
15. Differentiate the benefits of a closed versus microwave processor
16. Outline the functional property of microwave processing

17. Examine histologic reagent interactions with microwaves

Lecture 4:

18. Detail the principal importance of dehydration for tissue processing

19. Categorize and differentiate the following dehydrants and their uses in tissue processing:

- Alcohols (meth, eth, but...)
- Chloroform
- Dioxane
- THF

Lecture 5:

20. Describe the principle use of clearants in tissue processing

21. Classify the general properties of clearing agents

22. Categorize clearing reagents by chemical properties analyzing the pros/cons of each

Lecture 6:

23. Describe the importance of infiltration mediums in tissue processing

24. Illustrate paraffin as the primary infiltration agent of choice

25. Evaluate additives and their effects on paraffin's properties

26. Characterize alternative methods of tissue infiltration

Lecture 7:

27. Distinguish the steps involved in routine processing schedule

28. Detail the steps in rapid processing

29. Assess the criteria for rapid processing

30. Justify cold ischemic times for breast specimens and their impacts on specialized testing

Lecture 8:

31. Characterize issues in tissue processing as occur either pre or post processing

32. Determine the cause of processing errors

33. Characterize standard validation of tissue processing protocols

34. Evaluate reprocessing protocols

Lecture 9:

35. Identify the principle of tissue decalcification

36. Determine criteria for performing decalcification

37. Evaluate methods of decalcification

- Acidic methods
- Chelating methods
- Electrolytic ionization
- Ion-exchange resins

38. Classify the end point for tissue decalcification

39. Characterize common decalcification issues

40. Outline processes for cytologic cell block preparations

Lecture 10:

41. Characterize embedding equipment reviewing their uses

42. Evaluate proper tissue orientation for embedding common tissue elements

- Skin (punch, shave, and ellipse)
- Tubular structures
- Walled structures
- Biopsies
- Bone

43. Examine tissue microarray development methods

Lecture 11:

44. Evaluate proper tissue orientation for embedding common tissue elements

- Skin (punch, shave, and ellipse)



- Tubular structures
- Walled structures
- Biopsies
- Bone

45. Outline common prevention methods in embedding

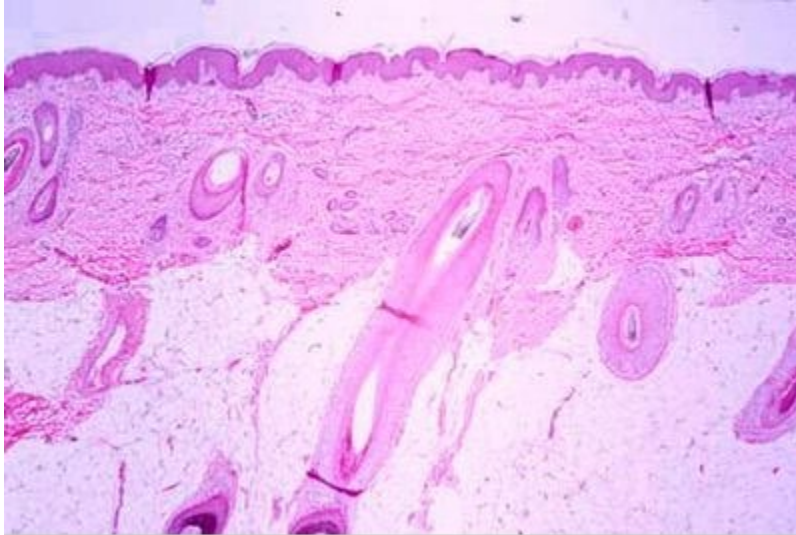
Overall:

- 46. Practice safety rules and regulations at all times
- 47. Utilize standard precautions for all areas of the lab
- 48. Problem solve issues as they occur in the lab



## Sentara RMH School of Histotechnology

### HTL 503 Processing and Embedding



H & E Slide of skin

**Instructor:** Shana Splawn, MBA, HTL( ASCP)<sup>CM</sup>

**Goal:** To educate the student in the proper submission, processing and embedding of surgical specimens. To enable students to adequately function in an active histology laboratory

**Textbooks:**

Carson, Freida L.(2020) *Histotechnology: A Self-Instructional Text*. 5<sup>th</sup> ed. ASCP Press.

Suvarna, S. Kim (2019) *Bancroft's Theory and Practice of Histological Techniques*. 8<sup>th</sup> ed. Churchill Livingstone Elsevier

**Method of Instruction:** Lecture, discussion, question and answer.

**Prerequisites:** Students should possess the following:

- Bachelor's degree
- 30 semester hours of chemistry and biology
- One college level math course

**Instructions:** Bring texts to class every day.

## PROCESSING AND EMBEDDING LECTURE SCHEDULE

<u>DATE:</u>	<u>TOPIC:</u>	<u>READING ASSIGNMENT:</u>
1/5/24	I. <u>Intro</u> <ul style="list-style-type: none"><li>• Steps in tissue processing</li><li>• Common processing variables</li><li>• Processor instrumentation</li></ul>	Carson, p. 27-28, 86 Bancroft, p. 73-74, 77-79, 142 Brown, p. 2-3
1/8/24	II. <u>Gross Handling</u> <ul style="list-style-type: none"><li>• Gross examination</li><li>• Tissue marking/orientation</li><li>• Tissue sampling</li><li>• Pre-processing</li></ul>	Bancroft, p. 64-72
1/10/24	III. <u>Principles of Tissue Processing</u> <ul style="list-style-type: none"><li>• Diffusion</li><li>• Porosity</li><li>• Osmolality</li><li>• Diffusion and Fick's Law</li><li>• Miscibility</li><li>• Viscosity</li></ul>	Bancroft, p. 42, 77-79
1/12/24	<b><u>Exam 1</u></b>	
1/15/24	IV. <u>Dehydration</u> <ul style="list-style-type: none"><li>• Definition</li><li>• Types of reagents</li><li>• Grading of reagents</li><li>• Time in reagent</li><li>• Criteria/choice of use</li></ul>	Carson, p. 86-87 Bancroft, p. 75
1/17/24	V. <u>Clearing</u> <ul style="list-style-type: none"><li>• Definition</li><li>• Types of reagents<ul style="list-style-type: none"><li>○ Xylene</li><li>○ Clearite</li><li>○ Hemo-D</li><li>○ Universal Solvents</li></ul></li><li>• Time in reagents</li><li>• Criteria/choice for use</li></ul>	Carson, p. 87-90 Bancroft, p. 75-76
1/19/24	VI. <u>Infiltration</u> <ul style="list-style-type: none"><li>• Definition</li><li>• Types of reagents<ul style="list-style-type: none"><li>○ Paraffin</li><li>○ Plastics</li><li>○ Epoxy Resin</li><li>○ Agar &amp; Gelatin</li></ul></li></ul>	Carson, p. 90-92 Bancroft, p. 76-77

## PROCESSING AND EMBEDDING LECTURE SCHEDULE

DATE:

TOPIC:

READING ASSIGNMENT:

- Time in reagent
- Criteria/choice of use

1/22/24

### Exam 2

1/24/24

#### VII. Processing Schedules

- Routine
- Biopsy
- Breast/fatty tissue
- Manual

Carson, p. 90-92  
Bancroft, p. 73-74, 79-82,  
436-442

1/26/24

#### VIII. Reprocessing/Troubleshooting

- Pre vs. Post processing
- Causes and processor errors
- Validation protocol
- Reprocessing protocol

Carson, p. 92-95  
Bancroft, p. 80-82  
Brown, p. 4-8

1/29/24

### Exam 3

1/31/24

#### IX. Specialty Processing

- Frozen sections
- Decalcification
- Cytology cell block preparations

Carson, p. 100-102, 360-361  
Bancroft, p. 285-291  
Brown, p. 9-10

2/2/24

#### X. Embedding & Specimen Orientation

- Definition
- Tissue Types
- Specimen Surface Identification
- Orientation of Structures
  - Tubes
  - Skin
  - Colon, gallbladder, cyst wall etc.
  - Inked specimens
- Embedding molds size and selection

Carson, p. 96-99  
Bancroft, p. 77, 505-508

2/5/24

#### XI. Wrong Embedding and Review

- Troubleshoot/evaluation
  - Uncentered
  - Unaligned
  - Uneven
  - Mushy
  - Dry
  - Poor consistency
  - Wax separation
- Outcome prevention

Carson, p. 99  
Brown, p. 11-12

## PROCESSING AND EMBEDDING LECTURE SCHEDULE

DATE:

TOPIC:

READING ASSIGNMENT:

2/7/24

**Exam 4**

2/9/24

Review

2/12/24

**FINAL EXAM**



## **Sentara RMH School of Histotechnology**

### **HTL 504 Microtomy Lecture Objectives**

The HTL student will at the completion of lectures, reading assignments, and labs on microtomy with the measurement of minimum of 70% correct on a written exam, practical or oral exam:

#### Lecture 1:

1. Qualify requirements to produce good sections
2. Categorize and differentiate between the various microtomes and their uses
3. Determine the importance of general maintenance of the rotary microtome
4. Compare/contrast the advantages/disadvantages for microtome automation

#### Lecture 2:

5. Identify the different types of reusable blades and describe their uses
6. Detail the advantages of disposable blades over reusable microtome blades
7. Differentiate between high and low profile blades
8. Summarize the details of glass knives and their uses
9. Summarize the details of diamond knives and their uses
10. Outline the importance of clearance angles in tissue sectioning
11. Specify common issues when clearance angles are outside their normal parameters
12. Identify features of subbed and positively charged slides
13. Classify the ideal properties of mounts
14. Evaluate resinous versus aqueous mounting media

#### Lecture 3:

15. Review the standard equipment used in obtaining paraffin sections
16. Identify the factors that affect paraffin sections before and during microtomy

17. Detail the steps to produce good paraffin sections

18. Generalize tissue types importance in sectioning

Lecture 4:

19. Describe/determine troubleshooting options for the following:

- Crooked/Curved ribbon
- Chatter
- Ribbon splitting
- Sections that don't ribbon
- Sticky ribbon, to the blade and elsewhere
- Incomplete sections
- Ribbon compression
- Ribbon disintegration
- Rolling ribbons
- Hard/Dense tissue sections
- Holes in ribbons
- Air bubbles

Lecture 5:

20. Define cryotomy

21. Compare/contrast cryotomy versus microtomy

- Detail components exclusive to cryostats

22. Differentiate between cryogens and cryoprotectants

23. Establish the factors affecting frozen sections

24. Detail common techniques for freezing specimens

25. Determine the advantages/disadvantages of frozen sections

26. Detail Intraoperative consultation

#### Lecture 6:

27. Describe general routine maintenance of the cryostat
28. Detail the steps involved in cryostat decontamination
29. Assess troubleshooting methods for handling: (identify problem and correct)
  - Section depth
  - Frosty cryostat
  - Smeared sections
  - Splintering sections
  - Unflattening sections
  - Curling sections
  - Ridged sections
  - Chatter
  - Hardened sections
  - Thick/Thin sections

#### Lecture 7:

30. Examine the uses of ultramicrotomy over standard microtomy
31. Compare/contrast ultramicrotomes vs standard microtomes
32. Overview common tools and components of ultramicrotomy
33. Summarize ultramicroscopy specific processing and embedding
34. Characterize block trimming for ultramicrotomes

#### Lecture 8:

35. Organize general sectioning for ultra-microtomes
  - Thicks and thins
36. Describe and perform method for picking up sections
37. Detail grid storage



38. Describe/Determine troubleshooting options for: (identify and correct)

- Sections thick-thin
- Microtome vibrations
- No sectioning
- Wet face
- Loss of sample section
- Chatter
- Compression
- Sections drag over the knife
- Sticky sections
- Sections that won't pick up
- Solve the problems with all of the above categories as they occur

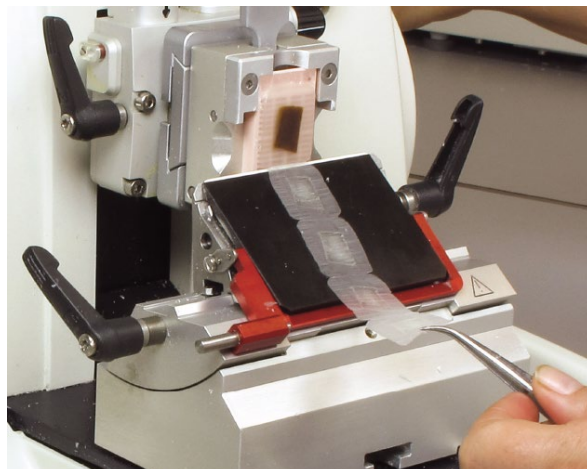
39. Overall:

- Demonstrate and practice safety technique and standard precautions
- Analyze and solve problems as they occur in the lab



## Sentara RMH School of Histotechnology

### HTL 504 Microtomy



Leica 2135 Microtome

**Instructor:** Shana Splawn, MBA, HTL (ASCP)<sup>CM</sup>

**Goal:** To educate the student in Microtomy Techniques so that they may function as a beginning level technologist/scientist in the Histology laboratory.

**Textbooks:**

Carson, Freida L. (2020) *Histotechnology: A Self-Instructional Text*. 5<sup>th</sup> ed. ASCP Press.

Suvarna, S. Kim (2019) *Bancroft's Theory and Practice of Histological Techniques*. 8<sup>th</sup> ed. Churchill Livingstone Elsevier

Brown, Richard W. (2009) *Histological Preparations: Common Problems and Their Solutions*. College of American Pathologists.

**Method of Instruction:** Lecture, discussion, question and answer.

**Prerequisites:** Students should possess the following.

- Bachelor's degree
- 30 semester hours of chemistry and biology
- One college level math course

**Instructions:** Bring texts to class every day. Complete assignments.

## MICROTOMY LECTURE SCHEDULE

### DATE:

### TOPIC:

### READING ASSIGNMENT:

1/4/24

#### I. Intro

- a. Rotary
- b. Sledge
- c. Sliding
- d. JB-4
- e. Cryostat
- f. Ultra microtome
- g. Automation features
  - i. Manual
  - ii. Semi-automated
  - iii. Fully-automated
- h. Maintenance

Carson, p. 17-18, 25-26  
Bancroft, p. 84

1/9/24

#### II. Blades/Slides/Mountants

- a. Disposable
  - i. High Profile
  - ii. Low Profile
- b. Reusable
- c. Glass
- d. Diamond
  - \*Important Angles
    - i. Wedge Angle
    - ii. Bevel Angle
    - iii. Tilt Angle
    - iv. Clearance Angle
    - v. Cutting Facet
- e. Tissue Adherence
- f. Slide Coatings
- g. Mounting Media and Refractive Index

Carson, p. 18-19, 25-26,  
32-34, 137-140  
Bancroft, p. 85-86, 535-536

1/11/24

### **Exam 1**

1/16/24

#### III. Paraffin

- a. Equipment
  - i. Flotation bath
  - ii. Slide drying oven or hot plate
  - iii. Fine point or curved forceps
  - iv. Sable or camel hair brush
  - v. Scalpel
  - vi. Clean slides
  - vii. Teasing needle or probes
  - viii. Ice tray
  - ix. Chemical-resistant pen or pencil
  - x. Automated printers
- b. Trimming tissue block
- c. Cutting Sections

Brown, p. 15  
Carson, p. 31-32, 35-36  
Bancroft, p. 85-87

## MICROTOMY LECTURE SCHEDULE

DATE:

TOPIC:

READING ASSIGNMENT:

- d. Floating Sections
- e. Drying sections

1/18/24

IV. Troubleshooting

- a. Crooked ribbons
- b. Block face unevenly sectioned
- c. Holes in the sections
- d. Failure for a ribbon to form
- e. Lifting of section from blade as block is raised
- f. Washboarding
- g. Chatter
- h. Thick and thin sections
- i. Compression
- j. Lengthwise scratches or spits in ribbon
- k. Flyaway sections

Brown, p. 16-23  
Carson, p. 19-25  
Bancroft, p. 87-90.0

1/23/24

**Exam 2**

1/25/24

V. Frozens

- a. Equipment
  - i. Cabinet
  - ii. Microtome
  - iii. Cryoembedding medium
  - iv. Blade
  - v. Anti-roll plate
  - vi. Sable or camel hair brush
  - vii. Chuck
- b. Uses for frozen sections
  - i. Rapid diagnosis for intra-operative consults
  - ii. Enzyme histochemistry (Muscle Bx)
  - iii. Immunoflorescents (Skin and Renal Bxs)
  - iv. Demonstration of Lipids
- c. Freezing techniques
  - i. Slamming
  - ii. Liquid Nitrogen
  - iii. Liquid Nitrogen-Isopentane (Histochemistry)
  - iv. Electric Cryobath-Isopentane
  - v. Peltier
  - vi. Aerosol sprays
  - vii. 30% Sucrose
- d. Decontamination of Cryostat
- e. Intraoperative consultation

Brown, p. 27-31  
Carson, p. 25-27, 102-104  
Bancroft, p. 88-93

## MICROTOMY LECTURE SCHEDULE

<u>DATE:</u>	<u>TOPIC:</u>	<u>READING ASSIGNMENT:</u>
1/30/24	VI. <u>Cryostat</u> <ul style="list-style-type: none"><li>a. Freezing artifact</li><li>b. Block loosens from chuck while sectioning</li><li>c. Tissue not embed flat on chuck</li><li>d. Section shreds</li><li>e. Section bunches up on knife edge</li><li>f. Thick and thin sections</li><li>g. Section incomplete</li><li>h. Tissue chipping out of block</li></ul>	Brown, p. 32-34 Carson, p. 102-104
2/1/24	<b><u>Exam 3</u></b>	
2/6/24	VII. <u>Ultramicrotomy</u> <ul style="list-style-type: none"><li>a. Trimming</li><li>b. Thick and thins</li><li>c. Picking up thick sections</li><li>d. Staining thick sections</li><li>e. Picking up thin sections</li><li>f. Section thickness</li><li>g. Staining thin sections</li><li>h. Grid storage</li><li>i. Troubleshooting</li></ul>	Bancroft, p. 442-444
2/8/24	VIII. <u>Troubleshooting Ultramicrotomy</u> <ul style="list-style-type: none"><li>a. Sections thick-thin</li><li>b. Microtome vibrations</li><li>c. No sectioning</li><li>d. Wet face</li><li>e. Loss of sample section</li><li>f. Chatter</li><li>g. Compression</li><li>h. Sections drag over the knife</li><li>i. Sticky sections</li><li>j. Sections that won't pick up</li></ul>	Bancroft, p. 445-449
2/13/24	<b><u>Exam 4</u></b>	
2/15/24	Review	
2/20/24	<b><u>Final Exam</u></b>	



## **Sentara RMH School of Histotechnology**

### **HTL 505 Staining and Immunohistochemistry Lecture Objectives**

The HTL student will at the completion of the Staining and Immunohistochemistry course, reading assignments, and lab exercises with an accuracy of 70% on a written exam, practical, or oral exam: (Cognitive and Psychomotor Domains)

#### Lecture 1: Staining Mechanisms and Dyes

1. Define the general theory of stains
2. Describe dyes and their functional components
  - Chromophores and auxochromes
3. Analyze dye classification systems
4. Examine dye interactions with tissues, solvents and stains
5. Distinguish influences on dye selectivity

#### Lecture 2/3: H/E Staining Principles and Procedures

6. Distinguish the methods of hematoxylin ripening
7. Identify the chromophores in hematoxylin
8. Formulate the mechanism of hematoxylin staining
9. Identify the cellular targets of hematoxylin
10. Clarify bluing and its impacts on hematoxylin
11. Differentiate between the formulations of hematoxylin
12. Formulate the mechanism of eosin staining
13. Identify the cellular targets of eosin
14. Differentiate between formulation of eosin
15. Detail the steps of H&E stain
16. Compare/contrast manual and automated staining methods
17. Apply H&E staining method to frozen sectioning
18. Describe/determine troubleshooting options for the following:
  - Smudgy nuclei
  - Lack of eosin shading
  - Poor contrast
  - Cytoplasmic stain is too dark
  - Cytoplasmic stain is too light
  - Nuclear stain is too dark
  - Nuclear stain is too light

- Uneven staining
- Red-brown nuclei
- Blue stained tissue elements
- Stain precipitate
- Bleeding eosin, hazy staining

#### Lecture 4: Nucleic Acids Stains

19. Characterize general features of nuclear counterstains
  - Cite alternate stain uses
20. Characterize general features of cytoplasmic counterstains
  - Cite alternate stain uses
21. Overview Feulgen Reaction
  - Stain principle/method
  - Sample preparation
  - Stain interpretation
  - Troubleshooting
22. Overview fast green-pyronin Y
  - Stain principle/method
  - Sample preparation
  - Stain interpretation
  - Troubleshooting
23. Investigate diagnosing Rickettsia in clinical pathology
  - Symptoms/manifestations
  - Clinical testing

#### Lecture 5: Polychromatic Stains

24. Overview the characteristics of polychromatic stains
25. Classify Romanowsky type dyes
26. Evaluate Geimsa staining profile
  - Stain principle/method
  - Sample preparation
  - Stain interpretation
  - Troubleshooting
27. Investigate clinical correlations utilizing polychromatic staining
28. Malaria
  - Symptoms/manifestations
  - Clinical testing
29. Chronic leukemia
  - Symptoms/manifestations
  - Leukemia vs. lymphoma
  - Clinical testing

#### Lecture 6-8: Carbs in Pathology

30. Define carbohydrates (and like substances) according to their chemical and histological characteristics
31. Characterize glycogen by molecular structure briefly overviewing biological significance
32. Analyze functional properties of glycosaminoglycans
33. Overview the general functions of mucin
34. Categorize types of mucin
35. Classify carbohydrates according to their histologic properties
36. Differentiate between epithelial and connective tissue mucins
37. Identify the general staining mechanism for Periodic Acid Schiff
38. Classify variations of the PAS stain
39. Characterize the general staining mechanism for Alcian Blue staining
40. Classify variations of Alcian Blue staining
41. Troubleshoot common staining errors with Alcian Blue and PAS
42. Evaluate Barrett's esophagus and how compound special stains are using in the formulation of a diagnosis
43. Analyze staining mechanism of mucicarmine
44. Identify positive mucicarmine staining
45. Analyze staining mechanism of colloidal iron
46. Identify positive colloidal iron staining
47. Troubleshoot common errors with mucicarmine and colloidal iron
48. Evaluate Macular Corneal Dystrophy and how carbohydrate stains are used in diagnosis

#### Lecture 9-14: Connective tissue and muscle in Path

49. Review classification of connective tissue types
50. Identify connective tissue classification
51. Characterize features of connective tissues according to their category
52. Review histological classification of muscle tissue
53. Examine instances of connective tissues in pathology
  - Gout
  - Lipomas
  - Liposarcomas
54. Evaluate general staining mechanism of trichrome stain
55. Differentiate between one step and multi-step trichrome stains
56. Overview trichrome troubleshooting
57. Evaluate general staining mechanism of reticulin stain
58. Classify alternate reticulin staining techniques
59. Overview reticulin troubleshooting
60. Classify uses of elastic stains in general pathology
61. Evaluate Verhoeff's elastic stain principle
62. Examine lesser used variations of elastic stains
  - Weighert's



- Orcein's
- 63. Review troubleshooting methods for Verhoeff's and Aldehyde Fuschin staining
- 64. Examine specialized staining methods for lipids
- 65. Differentiate sample preparation for fat stains from routine histological procedures
- 66. Evaluate positive stain reaction
  - Oil Red O
  - Sudan Black
  - Toluidine Blue
- 67. Analyze fat staining's role in the development of diagnosing fat embolisms
- 68. Evaluate positive stain reactions
  - PTAH
  - PASM
- 69. Troubleshoot common staining errors with PASM
- 70. Examine PASM use in diagnosing pyelonephritis
- 71. Review special stain features for connective tissues

#### Lecture 15-20: Microorganisms in Pathology

- 72. Clarify the 5 standard categories of microorganisms
- 73. Describe bacteria categories and methods of classification
- 74. Differentiate bacteria identification morphologically or histologically
- 75. Overview clinical significance of select bacterium:
  - *Actinomyces israelii*
  - *Nocardia asteroides*
- 76. Summarize fungi by biological characteristics
- 77. Overview clinical significance of select fungi:
  - *Aspergillus fumigatus*
  - *Blastomyces dermatitidis*
  - *Candida albicans*
  - *Coccidioides immitis*
  - *Cryptococcus neoformans*
  - *Histoplasma capsulatum*
  - *Pneumocystis carinii (jirovecii)*
  - *Sporothrix schenckii*
- 78. Illustrate methods of viral detections using histology
- 79. Identify Gram's staining principle
- 80. Differentiate between gram positive and gram negative bacterium
- 81. Characterize the biological significance of gram positive vs. gram negative
- 82. Classify modifications of the gram stain noting their differences and advantages/disadvantages
- 83. Troubleshoot common gram staining errors
- 84. Evaluate bacterial meningitis correlating how gram stain is used to diagnose it
- 85. Classify characteristics of acid fast organisms
- 86. Overview and differentiate common acid fast organisms

87. Classify acid-fast stains noting their differences and advantages/disadvantages
  - Kinyoun
  - Ziehl-Neelsen
  - Fite
  - Auramine-Rhodamine
88. Troubleshoot common errors in acid-fast staining
89. Evaluate tuberculosis and how acid-fast staining is used in establishing a diagnosis
90. Characterize general features of *Helicobacter pylori*
91. Overview *H. pylori* infection mechanism
92. Classify acid-fast stains noting their differences and advantages/disadvantages
  - Diff Quik
  - Alcian Yellow-Toluidine Blue
  - IHC
93. Troubleshoot common errors in *H. pylori* stains
94. Evaluate the clinical presentation and diagnosis of gastric ulcers
95. Overview general features of spirochete organisms
96. Differentiate between Argyrophilic and Argentaffin Reactions
97. Classify acid-fast stains noting their differences and advantages/disadvantages
  - Warthin-Starry
  - Steiner-Steiner
98. Troubleshoot common errors in spirochete staining
99. Evaluate the clinical presentation and diagnosis of Lyme's Disease
100. Classify fungal stains noting their differences and advantages/disadvantages
  - Grocott Methenamine-Silver Nitrate
  - Chromic Acid-Schiff
  - Gridley
101. Troubleshoot common errors in fungal staining

#### Lecture 21-23: Nervous System Pathology

102. Outline division of the nervous system
103. Describe and differentiate between
  - Sensory/motor neurons
  - Somatic/autonomic neurons
  - Sympathetic/parasympathetic neurons
104. Classify general features and morphology of neurons and neuroglial cells
105. Associate previous special stain techniques for staining neural structures
106. Evaluate positive staining reactions
  - Bodian
  - Holmes
  - Beilschowsky
  - Sevier-Munger
  - Holzer

- Cajal
  - Weil
  - Cresyl Echt Violet
  - Luxol fast blue
107. Characterize general troubleshooting methods of Bodian and Beilschowsky like stains
  108. Characterize the clinical significance of targeting specific neural structures
  109. Analyze neural stains in diagnosing Alzheimer's Disease
  110. Analyze histologic interpretation of astrocytomas

#### Lecture 24/25: Amyloid in Pathology

111. Present clinical definition of amyloid
112. Analyze amyloid molecular structure and physical characteristics
113. Classify variation of amyloid compounds
114. Examine amyloid deposit optical activity
115. Evaluate the clinical implications of amyloidosis including general disease presentation with macro and micro diagnostics
116. Evaluate positive amyloid stains
  - Congo red
  - Crystal violet
  - Thioflavin T
117. Identify the importance of sample preparation in congo red stain
118. Troubleshoot common amyloid staining errors

#### Lecture 26: Iron & Bile & Melanin Stains

119. Evaluate iron, melanin and bile positive staining reactions
  - Prussian blue
  - Turnbull blue
  - Fontana-Masson
  - Schmorl's
  - Hall's method
120. Identify methods for bleaching melanin pigment in tissues sections

#### Lecture 27 & 28: Hormones in Histopathology

121. Overview the basic characteristics of systems in endocrinology
122. Outline the general interaction between hormones and receptors
123. Classify hormones according to the tissue in the endocrine system
  - Pituitary gland
  - Hypothalamus
  - Thyroid gland
  - Parathyroid gland
  - Adrenal gland
  - Pancreas

- Ovary
  - Testis
  - Thymus
124. Assess the connection between cellular proliferation and hormones
125. Evaluate challenges in hormone based carcinogenesis
126. Overview the hormonal risk in cancers of:
- Endometrium
  - Breast
  - Prostate
  - Testicle
  - Thyroid
  - Adrenal gland

#### Lecture 29 & 30: Enzyme Histology

127. Outline factors affecting biologic enzymatic activity
128. Describe the main classification of enzymes
- General features of each of the major subclasses
129. Walkthrough specimen handling and preparation for muscle biopsy specimens
130. Review anatomical and histologic characteristics of muscular tissue
131. Investigate clinical implications of enzyme studies with a general overview of muscle dystrophy
132. Evaluate staining methods for enzyme histochemistry
133. Identify their principle staining target
134. Review specimen sample preparations
135. Inspect positive stain reactions and general QC
136. Clarify common technicalities of staining protocols

#### Lecture 31: Electron Microscopy

137. Review operational EM factors:
138. Fixative selection and formulations
139. Specific buffer solutions
140. Microtomy preparations
141. Classify sample preparations specific to EM
142. Investigate specialty preparation for different specimens
143. Characterize the basic components of the transmission electron microscope
144. Identify stains for thick and thin sections and their uses
145. Analyze techniques in anticipation of process difficulties

#### Lecture 32: Cytology, Methods and Stains

146. Investigate the similarities/differences between cytology and histology
147. Overview specimen types and collection methods
148. Determine specimen specifications for cytologic specimen preparations
149. Examine cytology stains and their diagnostic significance

## Immunohistochemistry Objectives

### 150. Basic fundamentals of immunohistochemistry

- Identify the definition of immunohistochemistry
- Overview antibodies following their development
  - Characterizing differentiation processes following B-cell production
  - Analyze antibody classification through mediated molecular processes
- Organize modes of antibody interactions
- Overview production and classification of antibodies for clinical testing
  - Polyclonal vs monoclonal
  - Animal host characteristics and selection
  - Sensitivity vs. specificity
- Introduce the basis of fundamental draw backs to antibody mechanisms in clinical testing
  - Cross reactivity
  - Background staining

### 151. Systems of detection in immunohistochemistry

- Evaluate basic principle of antigen/antibody demonstration
- Characterize methods of antigen masking
- Overview methods of antibody detection
- Identify mechanism for double and multiplex staining

### 152. Immunohistochemistry preparation methods

- Evaluate fixation and tissue processing as preparation for IHC
- Qualify the effective influence of pH and tempature
- Investigate HIER and EIER methods of antigen retrieval
- Outline generic microwave AR protocol
- Overview common enzyme and substrate in IHC methodologies
- Identify the optimal dilution for titrated antibody reagents
- Describe slide preparations for IHC

### 153. Protocol development in immunohistochemistry

- Identify methods for introducing antibody staining protocols
- Compare “home-brew” and kit based approaches to IHC protocols
- Demonstrate selection of positive and negative controls
- Outline components towards the development of an IHC protocol
- Outline requirements for IHC validation
- Contrast IHC validation in relationship to FDA approved testing methods

### 154. Quality control and troubleshooting IHC

- Overviewing standard IHC staining presentations
- Establish the criteria for evaluating quality control for IHC sections
  - Pre-analytic
  - Post-Staining

- Evaluate common troubleshooting strategies for immunohistochemical staining operations
  - Weak staining
  - No staining
  - Uneven staining
  - Non-specific staining
  - Background staining
  - Granular/precipitates
- 155. Methods of molecular detection: in situ hybridization
  - Characterize the fundamental principle of molecular biology and its functional properties in diagnostic pathology
  - Differentiate between methods of in situ hybridization
  - Establish selectivity of probe assays
  - Evaluate sample preparations for hybridization techniques
  - Verify quality control methods and criteria
- 156. Diagnostic FISH
  - Describe the principle method of FISH and how it is different from other ISH methods
  - Adapt the FISH general procedure from ISH method
  - Characterize troubleshooting methods improving
    - Weak/no staining
    - Morphology
    - Background
    - Truncation
  - Analyze FISH scoring methods
  - Identify quantitative FISH studies and their diagnostic significance
- 157. Fluorescence staining and ISH alternatives
  - Describe advantages/disadvantages of FISH to other pathology testing methods
  - Identify alternate ISH techniques demonstrating their diagnostic applicability
  - Review fundamental processes of immunofluorescence
  - Examine immunofluorescence in histopathology
  - Evaluate limitations of immunofluorescence
  - Assess considerations for choosing between Immunofluorescence and immunohistochemistry
- 158. Flow cytometry
  - Identify the diagnostic importance of flow cytometry in molecular pathology
  - Characterize the components of the instrument and how data is collected
  - Overview methods of data analysis
  - Characterize specimen sorting and gating methods for further testing evaluations
  - Examine lasers integration into instrumental detection methods
  - Analyze sub-setting applications as a method of profiling specimen data
- 159. Metastatic carcinoma of unknown primary site

- Identify the criteria of cancers of unknown primary source
  - Overview cellular lines of separate differentiation
  - Outline work-up components for determining primary source tumors
  - Characterize common IHC markers for determining cellular lines of differentiation
    - Including biochemical relevance in healthy versus pathologic tissue states
160. Amazing cytokeratin antigens and where to find them
- Define intermediate filament proteins
  - Overview generic molecular composition and functions of cytokeratins
  - Characterize common markers of simple keratins
    - Detail clinical diagnostic utility of CK 7, 8, 18/19, 20
  - Characterize common markers of complex keratins
    - Detail clinical diagnostic utility of CK 5/6
  - Characterize common markers of non-epithelial keratins
    - Detail clinical diagnostic utility of pankeratin
161. Distinguishing supplemental markers in unknown cancers
- Characterize the utility of coexpression of Vimentin
  - Identify components of supplemental markers
    - Differentiate between marker origins
    - Outline connection between other common diagnostic markers with supplemental markers
  - Classify the selection of specific markers to further indicate the origin of metastatic disease
  - Analyze targets of neuroendocrine markers
  - Overview diversity of paired box genes clarifying their diagnostic utility
162. Algorithmic approaches to histopathology diagnosis
- Evaluate an algorithmic approach to classifying CUPs presentations for panel based IHC staining
    - Differentiate between selective markers
    - Correlate positive and negative paths of IHC stain development
  - Apply diagnostic methodology and panel stain selections to evaluate clinical CUPs presentation
  - Characterize molecule methods and their contribution to establishing a diagnosis
    - EGFR and ALK
163. Skin deep antigen markers
- Identify components and areas of melanocyte presentation and development
  - Overview phenotypes of melanoma
  - Correlate common protein components connected in the demonstration of melanoma
  - Characterize melanoma makers
    - S-100, Calretinin, MART-1, HMB-45, KI-67
    - Identify common staining patterns of normal and disease states
  - Distinguish between melanoma and skin nevi both histologically and morphologically

- Differentiate IHC staining distribution for both tissue presentations
- Outline the clinical features of SCC and BCC
  - Analyze common diagnostic antibody expression patterns
  - Characterize poor prognostic factors for SCC and BCC
- 164. Immunohistochemistry of breast lesions
  - Overview classic and common pathologic breast morphology
    - Normal, myoepithelial, papillary, ductal, invasive, lobular, and fibroadenoma
  - Analyze immunohistochemical markers for breast in situ lesions
  - Formulate tumor identification stain panels method by IHC
  - Characterize methods for evaluating sentinel node biopsy collection and diagnostics
  - Assess theranostic stains and their role in directing patient care
- 165. Common immunostains of lymphoma
  - Organize common approaches towards establishing a lymphoma differential diagnosis
  - Classify the common presentation of Hodgkin's lymphoma
    - Differentiate between different varieties and subtypes of HL
  - Review principle diagnostic antigens of Hodgkin's lymphoma
  - Characterize supplemental markers and their contribution to immunostaining
  - Coordinate immunostaining markers to develop panel stains
    - Utilize panel stains to differentiate between subtypes of Hodgkin's lymphoma
    - Distinguish the Hans classifier for differentiating large cell varieties of non-Hodgkin lymphoma
- 166. Gastrointestinal immunohistochemistry
  - Overview classic and common pathologic GI morphology
    - Barrett esophagus, esophageal adenocarcinoma, neoplastic/non-neoplastic adenocarcinoma, and colorectal carcinomas
  - Analyze immunohistochemical markers for GI lesions
    - Correlate molecular/genomic applications of tumor classification
  - Formulate IHC staining panels for GI tumors
  - Assess theranostic stains and their role directing patient care

#### General Objectives (Affective Domain Objectives)

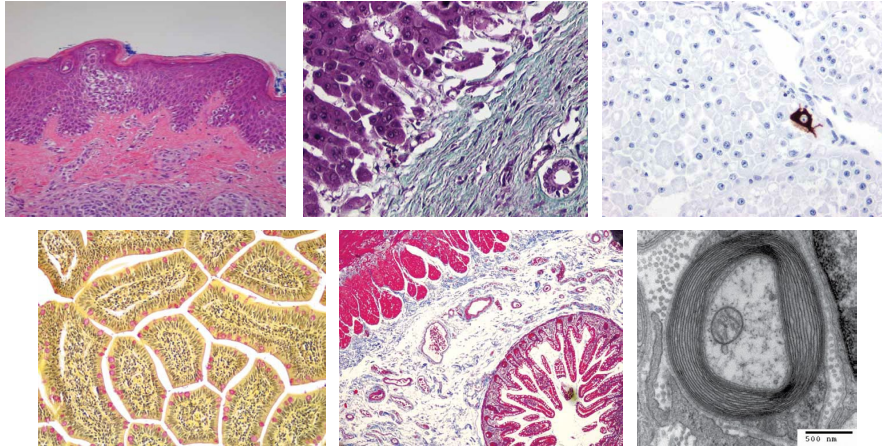
- 167. Demonstrate a professional behavior during class and on rotation.
- 168. Show interest and motivation in the subject being presented by preparing for assignments and asking questions as appropriate.
- 169. Attend class on time and on the designated day.
- 170. Offer to assist instructors and/or other students during the clinical year.
- 171. Present a professional appearance during attendance in the school.





## Sentara RMH School of Histotechnology

### HTL 505 Staining and Immunohistochemistry



**Instructor:** Shana Splawn, MBA, HTL (ASCP)<sup>CM</sup>

**Goal:** To educate students in the routine histology hematoxylin/eosin stain, special stains, enzyme histochemical stains, and immunohistochemical stains so that they may function as a histotechnologist in a surgical pathology laboratory.

**Method of Instruction:** Lecture, discussion, slide review, question and answer.

**Prerequisites:** Students should possess the following.

- Bachelor's degree
- 30 semester hours of chemistry and biology
- One college level math course

**Required Texts:**

Carson, Freida L. (2020) *Histotechnology: A Self-Instructional Text*. 5<sup>th</sup> ed. ASCP Press.

Suvarna, S. Kim (2019) *Bancroft's Theory and Practice of Histological Techniques*. 8<sup>th</sup> ed. Churchill Livingstone Elsevier

Brown, Richard W. (2009) *Histological Preparations: Common Problems and Their Solutions*. College of American Pathologists.

**Instructions:** Bring texts to class every day.

\*Note: This class is broken into two sections; however, sections overlap. Pay attention to dates.

## STAINING AND IHC LECTURE SCHEDULE

DATE	TOPIC	READING ASSIGNMENT
2/20/24	I. <u>Staining Mechanisms</u> <ul style="list-style-type: none"> <li>Theory of Staining</li> <li>Reagent/Solvent interactions</li> <li>Reagent factors</li> <li>Dye properties</li> </ul>	Carson, p. 106-112 Bancroft, p. 114-123
2/22/24	II. <u>H&amp;E Staining Part 1</u> <ul style="list-style-type: none"> <li>Hematoxylin/eosin varieties</li> <li>Stain mechanism</li> <li>Regressive/progressive methods</li> </ul>	Carson, p. 112-123 Bancroft, p. 126-137 Brown, p. 35-37
2/27/24	III. <u>H&amp;E Staining Part 2</u> <ul style="list-style-type: none"> <li>Frozen section methods</li> <li>Troubleshooting</li> </ul>	Carson, p. 125-131 Bancroft, p. 145-147 Brown, p. 38-47
2/29/24	<b><u>Stains Exam 1</u></b>	
3/1/24	IV. <u>Nucleic Acids</u>	Carson, p.131-134 Bancroft, p. 270-271, 500-502
3/5/24	V. <u>Polychromatic Stains</u>	Carson, p. 135-137
3/8/24	<b><u>Stains Exam 2</u></b>	
3/11/24	VI. <u>Carbohydrates Structure and Pathology</u>	Carson, p. 144-145 Bancroft, p. 176-183 Brown, p. 117, 125-127
3/13/24	VII. <u>Periodic Acid Shift and Alcian Blue</u>	Carson, p. 145-148, 151-155 Bancroft, p. 183-186 Brown, p. 92-93, 121-123, 128-132
3/15/24	VIII. <u>Colloidal Iron and Mucicarmine</u>	Carson, p. 149-151, 155-158 Brown, p. 127-128, 132 Bancroft, p. 186-188
3/18/24	<b><u>Stains Exam 3</u></b>	
3/20/24	IX. <u>Connective Tissue and Muscle Structure and Pathology</u>	Carson, p. 164-166 Bancroft, p. 153-162

## STAINING AND IHC LECTURE SCHEDULE

DATE		TOPIC	READING ASSIGNMENT
3/22/24	X.	<u>Trichrome</u>	Carson, p. 166-169 Bancroft, p. 162-167 Brown, p. 95-101
3/25/24	XI.	<u>Reticular Fibers</u>	Carson, p. 176-181 Bancroft, p. 170-172 Brown, p. 103-108
3/27/24	XII.	<u>Verhoff-van Gieson and Aldehyde Fuchsin</u>	Carson, p. 169-174 Bancroft, p. 167-170 Brown, p. 109-112, 114-115
4/2/24	XIII.	<u>Fat Stains</u>	Carson, p. 186-188 Bancroft, p. 496
4/4/24	XIV.	<u>Periodic Acid Methenamine Silver and Phosphotungstic Acid Hematoxylin</u>	Carson, p. 181-186 Bancroft, p. 134-135 156-158 Brown, p. 117-121
4/8/24	<b><u>Stains Exam 4</u></b>		
4/10/24	XV.	<u>Microorganisms in Pathology</u> • Organism Classification • Anatomic pathology perspectives in histology • Clinical correlations	Carson, p. 210-211 Bancroft, p. 255-277
4/12/24	XVI.	<u>Gram Stain</u>	Carson, p. 212-216 Bancroft, p. 258 Brown, p. 49-56
4/15/24	XVII.	<u>Acid Fast Bacteria Stains</u>	Carson, p. 212-216 Bancroft, p. 260-262 Brown, p. 57-64
4/17/24	XVIII.	<u>H. pylori and Spirochete</u>	Carson, p. 188-190, 218, 226-232 Bancroft, p. 262-266 Brown, p. 65-74, 77-82
4/19/24	XIX.	<u>Fungal Stains</u>	Carson, p. 219-226 Bancroft, p. 266-272 Brown, p. 85-93

## STAINING AND IHC LECTURE SCHEDULE

DATE		TOPIC	READING ASSIGNMENT
4/22/24	<b><u>Stains Exam 5</u></b>		
4/24/24	XX.	<u>Nervous System Structure and Pathology</u>	Carson, p. 192-193 Bancroft, p. 306-320
4/26/24 & 4/29/24	XXI. XXII.	<u>Nerve Stains 1</u> <u>Nerve Stains 2</u>	Carson, p. 193-208 Bancroft, p. 306-320
5/1/24	XXIII.	<u>Amyloid Structure and Pathology</u>	Carson, p. 158 Bancroft, p. 231-239 Brown, p. 133-134
5/3/24	XXIV.	<u>Amyloid Stains</u>	Carson, p. 158-162 Bancroft, p. 239-249 Brown, p. 135-137
5/6/24	<b><u>Stains Exam 6</u></b>		
5/8/24	XXV.	<u>Pigment Stains</u>	Carson, p. 234-252 Bancroft, p. 198-228
5/10/24	XXVI.	<u>Hormones and Endocrine System</u>	Handout
5/13/24	XXVII.	<u>Hormones &amp; Carcinogenesis</u>	Handout
5/15/24	<b><u>Stains Exam 7</u></b>		
5/17/24	XXVIII.	<u>Intro to Enzyme Histochemistry</u>	Carson, p. 282-288 Bancroft, p. 502-504

## STAINING AND IHC LECTURE SCHEDULE

DATE	TOPIC	READING ASSIGNMENT
5/20/24	XXIX. <u>Enzyme Stains</u>	Carson 289-303
5/22/24	XXX. <u>Electron Microscopy Staining Techniques</u>	Bancroft, p. 441, 448
5/24/24	XXXI. <u>Cytology Staining</u>	Carson, p. 362-366
5/28/24	<b><u>Stains Exam 8</u></b>	
5/30/24	XXXII. Stains Cumulative Review	
6/4/24	<b><u>Stains Final Exam</u></b>	

Lectures 4-31 all contain the following contents:

- Principle
- Mechanism
- Troubleshooting
- Clinical Correlations

## STAINING AND IHC LECTURE SCHEDULE

DATE	TOPIC	READING ASSIGNMENT
<b><u>IHC PORTION</u></b>		
4/5/24	I. Fundamentals of IHC	Carson, p. 254-255 Bancroft, p. 337-340 Brown, p. 139-140
4/9/24	II. Systems of Detection in IHC	Carson, p. 259-261 Bancroft, p. 340-346
4/11/24	III. IHC Preparation Methods	Carson, p. 255-258 Bancroft, p. 341-342, 346-350
4/16/24	IV. Protocol Development in IHC	Carson, p. 261-263 Bancroft, p. 354-362, 373-380
4/18/24	V. Quality Control and Troubleshooting	Carson, p. 265-271, 274 Bancroft, p. 381-389
4/23/24	<b><u>Exam 1 – IHC</u></b>	
4/25/24	VI. Principles of Molecular Pathology	Carson, p. 306-312 Bancroft, p. 395-404
4/30/24	VII. Diagnostic FISH	Carson, p. 312-313 Bancroft, p. 410-418
5/2/24	VIII. Fluorescence Staining and ISH Alternatives	Carson, p. 313-315
5/7/24	IX. Flow Cytometry	Handout
5/9/24	<b><u>Exam 2 – IHC</u></b>	
5/14/24	X. Metastatic Carcinoma of Unknown Primary Site	
5/16/24	XI. CUPs Cytokeratin	
5/21/24	XII. Supplemental Markers	
5/23/24		

## STAINING AND IHC LECTURE SCHEDULE

DATE	TOPIC	READING ASSIGNMENT
	VIII.	Algorithmic Approaches to Histopathology Diagnosis
5/29/24	<b><u>Exam 3 – IHC</u></b>	
5/29/24	IX.	Skin IHC
5/31/24	X.	Breast IHC
6/3/23	XI.	Common Lymphoma Markers
6/5/24	XII.	Immunomarkers of the Gastrointestinal Tract
6/7/24	<b><u>Exam 4 – IHC</u></b>	
6/10/24	XIII.	Immunohistochemistry Review
6/12/24	<b><u>Final Exam – IHC</u></b>	

# **Sentara RMH HEALTHCARE**

## **Medical Laboratory Scientist & Histotechnologist Schools**

### ***MT 408 Clinical Laboratory Supervision and Management***

#### **OBJECTIVES:**

The MLS and HTL student will at the completion of the lectures and classes, reading assignments, class participation and other assignments on management:  
(Measurement will be the attainment of a minimum of 70% on a written or practical exam, unless otherwise stated)

1. Describe the six management functions and relate each to management in the laboratory. List the management functions and define each one in detail.
2. Assess one's own leadership abilities with regard to the qualities presented in class.
3. Evaluate management scenarios given in class, and select the appropriate course of action in managing an employee or other problem.
4. Describe the characteristics of a good manager. Define a good manager and list specific characteristics to include personality types, communication skills, ability to organize, and knowledge of the area.
5. Distinguish effective management attributes from ineffective ones.
6. Describe a minimum of three types of plans, and relate these to managing the clinical laboratory.
7. Describe total quality management and relate it to the management of health care.
8. Prepare a flow chart to analyze the processing of specimens for the RMH Clinical Laboratory. Devise a plan to improve this flow of specimens.
9. Prepare a SWOT Analysis for the implementation of a "Point of Care" testing section for the RMH Laboratory Department.
10. Devise a plan for effective time management by utilizing the skills discussed in class.
11. Draw an organizational chart and define the direct lines of authority and indirect lines of authority.



12. Define organizing as it relates to management.
13. Explain the need for good customer service in health care today.
14. Describe one way to reengineer the process of accepting specimens and processing these specimens at the RMH Laboratory. The new process would result in a decrease in staff and money, thus an improvement to the bottom line.
15. Describe ergonomics and how it relates to computer use.
16. Explain the benefit of effective directing on personnel and productivity.
17. Demonstrate effective verbal communication and describe the need for such a skill in management. (Include the proper use of body language, facial expressions, silence, sounds, etc.)
18. Describe the barriers to effective communication.
19. Relate the need for motivation to effective management.
20. Describe Maslow's hierarchy of human needs, and how an organization fulfills those needs.
21. Relate delegating to directing as it applies to good management.
22. Describe coaching as it relates to effective management.
23. Define controlling as it relates to timely and cost-effective attainment of an organization's goals.
24. Analyze and revise a PFP (Pay for Performance) Standards Form for a position in the RMH Clinical Laboratory (Education Coordinator Position).
25. Describe a quality assurance program and its use in the clinical laboratory.
26. Utilize the PDCA (Plan, Do, Check, Act) cycle. (The Shewhart Cycle devised by Dr. W. Edwards Deming for use in the process of continuous quality improvement).
27. Describe the problem solving steps and utilize these steps to solve a management problem presented in class.
28. Describe the coordinating function of management.
29. Role-play an interview scenario utilizing the acceptable and lawful questions in an interview.

30. Discuss the multi-skilled worker, and the Americans with Disabilities Act (ADA).
31. Relate testing volumes to scheduling for staff.
32. Describe the federal government legislation related to hiring practices, regulation of laboratories, and personnel.
33. Draw an organizational chart showing the federal agencies that relate to health and human services.
34. Discuss registration, licensure, certification, and accreditation as it relates to the clinical laboratory.
35. Describe the test systems according to CLIA '88.
36. Discuss the agencies and associations associated with the clinical laboratory (AABB, AHA, CDC, CAP, COLA, DPH, FDA, HCFA, ISO, JCAHO, NCCLS, NIDA, OSHA, National Technical Information Services.)
37. Describe the government legislation related to medical practice to include Medicare, CLIA, OSHA, Stark I, 1989, Stark II 1993 and PPACA.
38. Utilize financial and accounting terms commonly used in the laboratory fiscal management to include:
- Profit and loss
  - Cost/benefit
  - Reimbursement requirements
  - Materials/inventory management
39. Describe sources of laboratory revenues, and explain the challenges managers face in obtaining these revenues.
40. Define laboratory costs, and describe how each is used in calculating total expense, cost per test, and break-even numbers.
41. Evaluate cost containment strategies.
42. Define the basic principles of evaluation, and describe ways to assess the performance of laboratory personnel and laboratory-related activities.
43. Describe employee competency checks, and devise a competency assessment for a medical laboratory scientist and a histotechnologist.
44. Role-play a successful performance interview from a scenario given in class.

45. Calculate productivity ratios for a clinical laboratory for one month.
46. Describe outcomes management and outcome measures.
47. Define benchmarking and its application to management in the laboratory.
48. Describe laboratory marketing services, customer relations, guest relations, and develop a plan to handle and monitor customer complaints.
49. Describe the process of acquiring a laboratory information system.
50. Evaluate the usefulness of a laboratory information system.
51. Outline an article on the acquisition and evaluation of a laboratory information system, and describe the contents of the article to the rest of the class.
52. Utilize concepts and principles of laboratory operations as they apply to performance improvement.
53. Describe the dynamics of healthcare delivery systems as they affect laboratory service by reading and discussing the following summaries:
  - The Health Care Delivery System: A Blueprint for Reform
  - Integrated Health Care Delivery Systems' Challenges by Bonnie Boone
54. Describe the dynamics of healthcare delivery systems as they affect laboratory services, healthcare in the US and other countries, and current proposed changes by the Federal Government.
55. Demonstrate how critical pathways can be used in making clinical decisions and in planning for the future.
56. Utilize job descriptions in preparing a PACE form for a RMH employee who works in the lab. Demonstrate how these are used in the annual review process.
57. Define one FTE and calculate an annual salary when given pay per hour.
58. Utilize concepts and principles of motivational theories as they apply to performance improvement.
59. Describe a quality management system for continuously analyzing, improving and reexamining resources, processes and services within an organization.

60. Discuss the total testing process as a comprehensive working model for evaluating the components of the laboratory's quality management plan to include Preanalytical, analytical and post-analytical variables.
61. Discuss quality control as a method for establishing specifications for an analytical process, assessing the procedures, monitoring conformance by statistical analysis, and taking corrective actions to bring the procedures into conformance.
62. Define the essential components of a laboratory safety program
63. Evaluate the program for regulatory compliance
64. Identify hazardous materials and procedures in the laboratory.
65. Calculate the acceptable range for a control in the laboratory when the mean and standard deviation are given.
66. Analyze Levey-Jennings quality control charts by doing the following:
- Identify an upward and downward shift and trend
  - Apply quality control rules to determine the possible cause of an error
  - Correct an error
67. Calculate the mean, median, mode and standard deviation.
68. Calculate molarity, normality, molality, dilutions, conversions from mg% to mEq/L and from mEq/L to mg%, and conversions from one concentration to another.
69. Make a dilution from a concentrated stock solution correctly.



## **MLS & HTL**

### **MT 408 Clinical Laboratory Supervision and Management**

**Method of Instruction:** Lecture, discussion, question and answer, role playing, and  
practice of the various management skills.

**Instructor:** Abigail Blosser, MLS (ASCP)<sup>CM</sup>

**Pre-requisite courses:** Three years of college to include the required courses for  
entry into the RMH Medical Laboratory Scientist School.

**Course Goal:** To educate the student in all areas of laboratory management so that  
they may function as a beginning level scientist/technologist with  
the projected ease of movement into future management positions  
in  
the clinical laboratory.

**Principle Reference Text:** "Clinical Laboratory Science Education and Management," by Wallace and Klosinski, Saunders and Co., 1998.

#### **OTHER REFERENCES:**

"Management in Laboratory Medicine," by Snyder and Wilkinson, Lippencott-Raven Publishers, 1998.

"Medical Laboratory Management and Supervision," by Varnadoe, F. A. Davis, 1996.

"Total Quality Management in Healthcare," by D. H. Stamatis, McGraw Hill, 1996.

"Reinventing the Workplace," by David I. Levine, The Brookings Institution, 1995.

"Myths of Information Systems Selection," Braley Consulting Services, Inc.

"Information System Selection: There is a Better Way," Braley Consutling Services, Inc.

**“Selection Process of a LIS,” CLMA, 1999, CAP Today, Gary Braley.**

**Article: “Case Study: Information Systems,” by Janet T. Headley, MT(NCA), Advance/Laboratory, May 2000.**

**Article: “Ten Steps To Better Time Management,” by Rebecca Thimm, Advance/Laboratory, May 2000.**

**Article: “Charting A Course for Successful LIS Implementation,” by Pamela Tarapchak, Advance/Laboratory, May 2000.**

**Article: “Sifting Through the Data to Find the Best LIS,” by Judith A. O’Brien, MLO, Jan. 2001.**

**Textbook: Principles of Clinical Laboratory Management, by Jane Hudson, Printice Hall, 2004.**

**Textbook: Henry’s Clinical Diagnosis and Management by Laboratory Methods, by Richard A McPherson and Matthew R. Pincus, 2017.**

**Textbook: Clinical Laboratory Management, by Lynne S. Garcia, 2014.**

**OUTLINE:**

**LECTURE I 3/4/24**

- I. Management Process and Managers
  - A. Organizational Chart
  - B. Management Concepts
    - 1. Management by Objectives
    - 2. Quality Management
  - C. The Six Management Functions
  - D. Managerial Roles
  - E. Styles of Management
  - F. Traits of Managers
- II. Planning
  - A. SWOT Analysis
  - B. Components of Planning
  - C. Flow Diagram of a Process
  - D. Effective Time Management
- III. Dynamics of Healthcare Delivery Systems
  - A. Effect on Laboratory Service
  - B. Systems in the United States

**LECTURE II 3/6/24**

- III. Organizing
  - A. Authority and Responsibility
  - B. Reengineering a Laboratory Process
  - C. Ergonomics
  - D. Materials Management
  - E. Organizing Activities and Events
- IV. Directing
  - A. Essential Skills of Directing
    - 1. Communication
      - a. Verbal (Body Language)
  - B. Motivating
    - 1. Maslow's Hierarchy of Human Needs
  - C. Delegating
  - D. Coaching
- V. Controlling
  - A. Work Standards
  - B. Work Measures
  - C. Quality Assurance
  - D. Plan, Do, Check, Act (PDCA from Dr. W. Edwards Deming)

E. Decision Making and Problem Solving

**LECTURE III 3/7/24**

VI. Laboratory Information Systems

- A. System Components
- B. Software and Networks
- C. Hardware
  - 1. Hospital Information System
- D. Interface software

VII. The Electronic Medical Record

VIII. The Acquisition and Evaluation of Laboratory Information Systems

- A. Define System Requirements
- B. Request Bids
- C. Demonstrations
- D. Staffing
- E. Implementation
- F. Standard Operating Procedures
- G. Data Security
- H. Data Retention

**EXAM 3/12/24**

**LECTURE IV 3/14/24**

IX. Coordinating

- A. CLIA 1988
- B. Multiskilled Workers
- C. Government Legislation Affecting Labs
  - 1. Diversity and the Americans with Disabilities Act
  - 2. Government Regulation and Standards as Applied to Lab Practice
- D. Scheduling and Teams
- E. Critical pathways, PERT and planning techniques
- F. Federal Government Legislation Related to Hiring Practices

X. Total Quality Management and Quality Assurance/Quality Improvement

- A. Basic requirements
- B. Team Building Skills and Uses
  - 1. Continuous Improvement
  - 2. Performance Improvement
- C. Basic tools of TQM
  - 1. Cause and Effect Diagram (fishbone diagram)
  - 2. Dispersion Analysis Diagram
- D. Principles and Practices of Quality Assurance/Quality Improvement
  - 1. Pre-analytical, Analytical, and Post-analytical Components of Laboratory Services
- E. Take Home Assignment

XI. Federal Government Legislation Related to Hiring Practices



## **LECTURE V**     **3/19/24**

- XII. Managing Finances
  - A. Basic Financial Management
  - B. Profit and Loss
  - C. Revenue, Operating Costs, Capital Costs, Cost Management, Cost Analysis
    - 1. Cost Per Test
    - 2. Break Even Analysis
    - 3. Cost Accounting and Cost Containment
    - 4. Reimbursement Requirements
    - 5. Materials and Inventory Management
- XIII. Evaluating and Personnel Management
  - A. Basic Principles of Evaluation
  - B. Personnel Evaluation and Human Resource Management
    - 1. Performance Standard/Evaluation
      - a. Utilization of Personnel
      - b. Analysis of Workflow and Staffing Patterns
    - 2. Competence Assessment
    - 3. Performance Appraisals (PFP) and Position Description
    - 4. Performance Interview
  - C. Evaluation of Activities
    - 1. Laboratory Productivity Measures
    - 2. Outcomes Management
- XIV. Benchmarking
- XV. Marketing Services
  - A. Customer Service, Guest Relations
- XVI. Clinical Decision Making
- XVII. Dynamics of Healthcare Delivery Systems
  - A. Affect on Laboratory Service
  - B. Healthcare Delivery in US versus Other Countries
  - C. Current Changes Proposed by Federal Government

## **LECTURE VI**     **3/21/24**

- XVIII. Quality Management
  - A. Analyzing, Improving, reexamining resources, processes and services
- XIX. Quality Assessment
  - A. Total Quality Plan
  - B. Total Testing Process
    - 1. 3 Phases
      - a. Preanalytical
      - b. Analytical
      - c. Post analytical
- XX. Quality Improvement Tools
  - A. Q-Probes
  - B. Q-Tracks
  - C. Quality Control
    - a. Deviation
      - i. Systemic
      - ii. Random

- b. Frequency
  - D. Levey-Jennings Charts
    - a. Westgard Rules
  - E. External QC (Proficiency Testing)
- XXI. Quality Management of Post analytical Processes
  - A. Time Sensitive
  - B. Test Selection & Implementation
    - a. Waived
    - b. Non-waived
- XXII. Current Regulations
  - A. Four Horsemen
    - a. CLIA '88
      - i. FDA
      - ii. CMS
      - iii. CDC
    - b. HIPPA
    - c. OSHA
    - d. Stark
  - B. Long-Term Effects: Legislation, Regulation, Accreditation
  - C. Healthcare Reform
    - a. PPACA
    - b. Current Trends and Issues with Healthcare Reform

## **LECTURE VII    3/25/24**

### XXIII. Safety Management Plan & Responsibilities

- A. Standard Precautions
- B. PPE
- C. Engineering
- D. Design
- E. Vaccination
- F. Hazardous waste
- G. Safety Devices

### XXIV. Laboratory Hazards

- A. Biological
  - a. Transmission
  - b. LAIs
- B. Chemical
  - a. Classification
  - b. Exposure
- C. Physical
- D. Radiological
  - a. Risk
    - i. Time
    - ii. Distance
    - iii. Shielding

### XXV. Standard Precautions

- A. OSHA

### XXVI. Hazard Prevention and Containment

- A. Risk Assessment

- a. Exposure Control Plan
  - b. WHO
  - c. CDC/NIH
  - d. Biosafety Lab
- B. Handwashing
- C. Barrier Protection
- D. Engineering Controls
- E. Chemical Fume Hoods
- F. Biological Safety Cabinets
- G. Sterilization and Decontamination
  - a. Germicides
  - b. Disinfectant
  - c. Sterilization
- XXVII. Spill Management

## **LECTURE VIII 3/27/24**

- XXVIII. Metric System
  - A. Mass
  - B. Length
  - C. Volume
  - D. Conversions
- XXIX. Aqueous Solutions
- XXX. Molarity
- XXXI. Normality
- XXXII. Molality
- XXXIII. Dilutions
  - A. Clinical Application
  - B. Dilution Series
    - a. Independent
    - b. Serial
      - i. Four fold Serial Dilutions

## **Final EXAM 4/2/24**

# Sentara RMH MLS and HTL Schools

## MT 409 Education and Research

### OBJECTIVES

The MLS and HTL student will at the completion of the MT 409 Education and Research course, reading assignments, and practice in class giving a lecture with a minimum of 70% accuracy on a written or oral exam:

1. Define competencies and curriculum, and write behavioral objectives. Explain how all these and learning are interrelated to develop a curriculum.
2. List the qualities of a good teacher. Discuss how the teacher is a facilitator.
3. Explain the results of research as it applies to student expectations of a course.
4. Utilize competency-based education and task analysis as it relates to observation of performance and conversion of this into objectives and competencies.
5. List the responsibilities of a good teacher.
6. Write a behavioral objective for information given in class.
7. List the benefits of objectives for students.
8. List and define the three learning domains of Bloom to include cognitive, affective, and psychomotor.
9. Write objectives in the three learning categories utilized on the Board of Certification Exam to include recall, application, and problem solving.
10. Explain the six levels of learning in the Cognitive domain and correlate with the certification exam modified levels of three instead of six. Explain and write test questions at each level utilized in the certification exams.
11. List the levels in the Affective domain and explain how one progresses up the domain.
12. List the three levels of learning in the psychomotor domain.

13. Demonstrate a working knowledge of role playing by performing a scene in class from a pre-determined clinical setting. Explain how role playing can be used in an educational setting.
14. List the advantages and disadvantages of the various teaching techniques to include lecture, question and answer, discussion, role playing, demonstration, and doing.
15. List the advantages and disadvantages of computer-assisted instruction.
16. Write a description of teaching using the Internet and give advantages of this method.
17. List and write examples of the different types of evaluation to include multiple choice, essay, short answer, and matching. Explain which methods of evaluation are subjective or objective. Define subjective as compared with objective as it applies to test questions.
18. Write a lecture or teaching module complete with objectives, outline, and evaluation mechanisms.
19. Evaluate published studies as an informed consumer.
20. List the steps in the research process.
21. Explain the factors to consider when writing for publication in the clinical laboratory sciences.
22. Describe the use of statistics, both descriptive and inferential, with regard to research practice.
23. Identify the purpose of various types of research.
24. Give a five minute presentation to the class demonstrating good eye contact, speaking ability, and write objectives, competencies and test questions on this presentation. Correlate the objectives, competencies, and test questions for this presentation.
25. List the requirements of JACHO for hospital employees.
26. Discuss correlation coefficient and define the meaning of different numerical values.
27. Describe the different types of tests to include Norm-referenced and Criterion-referenced.
28. Identify the group of people that investigates research articles for publication.
29. Identify the general areas/Standards required by NAACLS to be included as part of the curriculum for a BS degree level such as HTL and MLS

30. Identify goals and compare them with objectives for a course of instruction.
31. Discuss the use of criticism in instruction.



# **Sentara RMH HEALTHCARE**

## **MLS & HTL Schools**

### **Education MT 409** (Research Included)

#### **Lecture I**      **2/21/24**

##### I. *The Education Process*

- A. Learning
- B. The Teacher as a Facilitator
- C. Qualities of a Teacher
  - 1. Student expectations of a course
  - 2. Teacher responsibilities
- D. Behavioral Objectives (Educational Map)
  - 1. Competency-Based Education
  - 2. Task Analysis
  - 3. Benefits of objectives for students
  - 4. How to write an objective
- E. Professional Competency: Hierarchical Domains
  - 1. Cognitive Domain
    - a. Bloom vs. Board of Registry
  - 2. Affective Domain
    - a. Attitudes
  - 3. Psychomotor Domain
    - a. Hand to Eye coordination
- F. Questions to answer and one problem to solve

##### II. *Research Design/Practice*

- A. Introduction to Research: Process and Plan; Problem and Hypothesis
- B. Writing a Proposal
- C. IRB Process
- D. External and Internal Validity
- E. Research Design: Experimental & Quasi-experimental
- F. Data Collection/Measurements & Instrumentation
- G. Use of Statistics: Descriptive and Inferential
- H. Selection and Interpretation of Statistical Tests
- I. Dissemination and Critical Evaluation of Research
- J. Writing for Publication in the Clinical Laboratory Sciences

**I. Teaching Methods**

- A. Lecture
  - 1. Advantages and disadvantages (Handout)
- B. Discussion
- C. Teaching Via Electronic Media
  - 1. CAI—Computer Assisted Instruction
  - 2. Teaching Using the Internet
    - a. Communication with patients
    - b. Drug searches
    - c. Disease states
- D. Role Playing
- E. Demonstrations
  - “A well-prepared demonstration is worth a million words.”
- F. Videos & Tapes
- G. Distance Learning

**II. Types of Testing****A. Objective vs. Subjective**

- 1. Essay tests
- 2. Matching
- 3. Multiple choice
- 4. Short answer

**III. Research**

- A. Statistical significance in a research study
  - 1. “Effect Size”
- B. Inferential Statistical Tests
- C. Communications of research results
- D. Collection Qualitative Data
  - 1. Coding Qualitative Data
- E. Publication Format
- F. Evaluation of research papers



### **Class III Student Presentation**

- Each student will give a 5 minute presentation to the class

- Grading:

- Overall presentation 10 points
- Completeness of outline 5 points
- Correctness of objectives 20 points
- Objective correlation with test 20 points
- Objectivity of test questions 20 points
- Overall correlation (obj. test etc.) 25 points

The topic must relate to laboratory medicine, but should be of special interest to you. You select your own topic.

Total.....100 points

### **Class IV Final Exam—2/26/24**